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No. 3157] [VOL. 122

THE ARCHITECTURAL PRESS

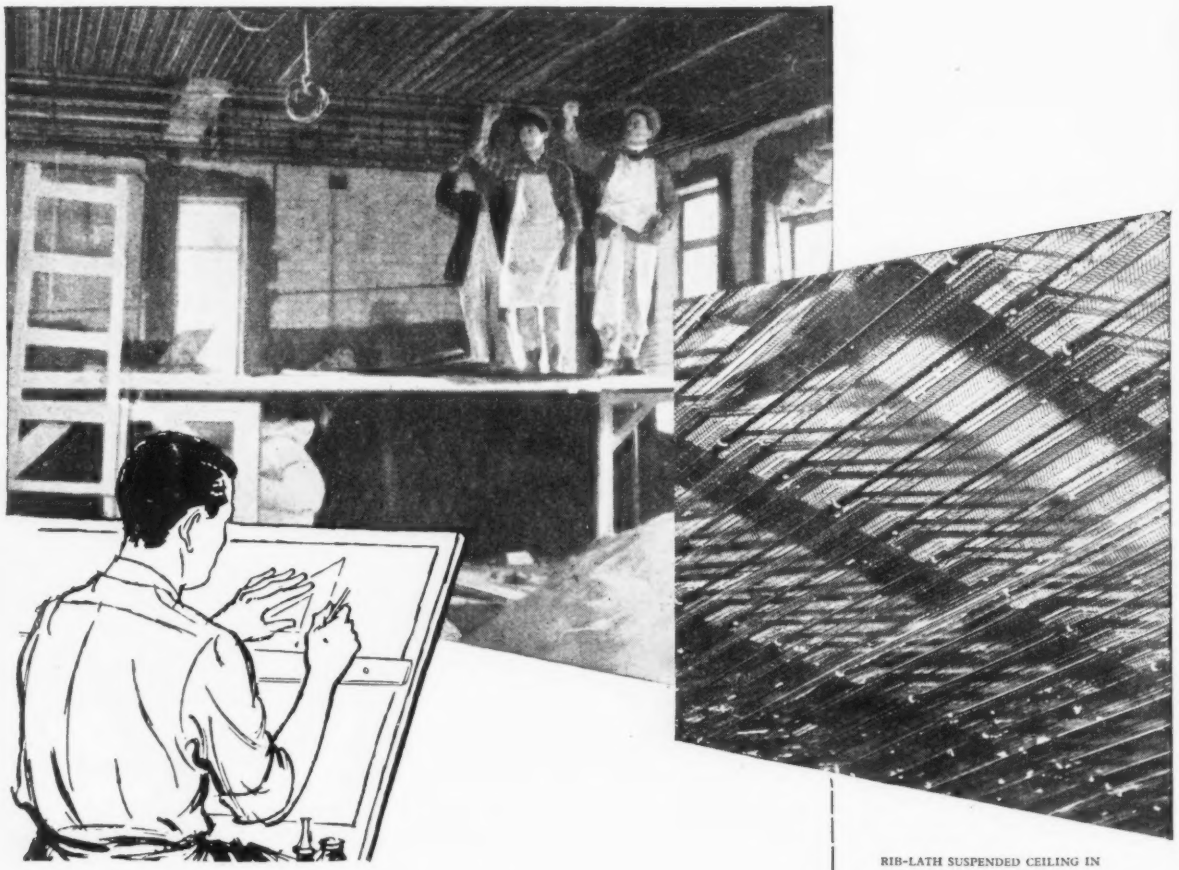
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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to L one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. Marlborough Whitehead, "Dyneley," Castle Hill Avenue, Berkhampstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 5, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ArchSA	Architectural Students' Association. 34/36, Bedford Square, W.C.1.	
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 8738
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	Reliance 7611, Ext. 1706
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Whitehall Gardens, Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
BRDB	British Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
BRS	Building Research Station. Bucknalls Lane, Watford	Garston 2246
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. British Standards House, 2, Park St., W.1.	Mayfair 9000
BTE	Building Trades Exhibition. 4, Vernon Place, W.C.1.	Holborn 8146/7
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Civic Centre, Newport, Mon.	Newport 65491
CAS	County Architects' Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester.	Chichester 3001
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Radlett 5616
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7, Zurich, Switzerland.	
COID	Council of Industrial Design. 28 Haymarket, S.W.1.	Trafalgar 8000
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DPT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.	Welbeck 9966
FASS	Federation of Association of Specialists and Sub-Contractors, Artillery House, Artillery Row, S.W.1.	Abbey 7232
FBBDO	Fibre Building Board Development Organization, Ltd. 47, Princes Gate, Kensington, S.W.7.	Kensington 4577
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 26, Great Ormond Street, Holborn, W.C.	Chancery 7583
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4041
GBPA	Gypsum Building Products Association, 11, Ironmonger Lane, E.C.2.	Monarch 8888
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. C/o R. H. Davies, F.R.I.B.A., 44, Lowndes Street, S.W.1.	Belgravia 3081
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1.	Sloane 5615
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215



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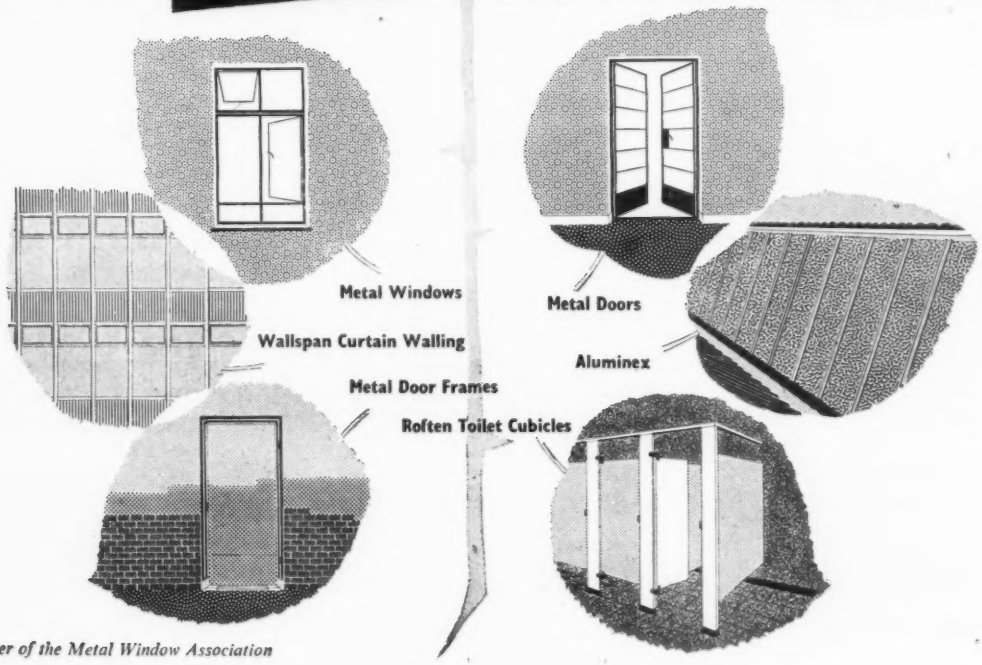


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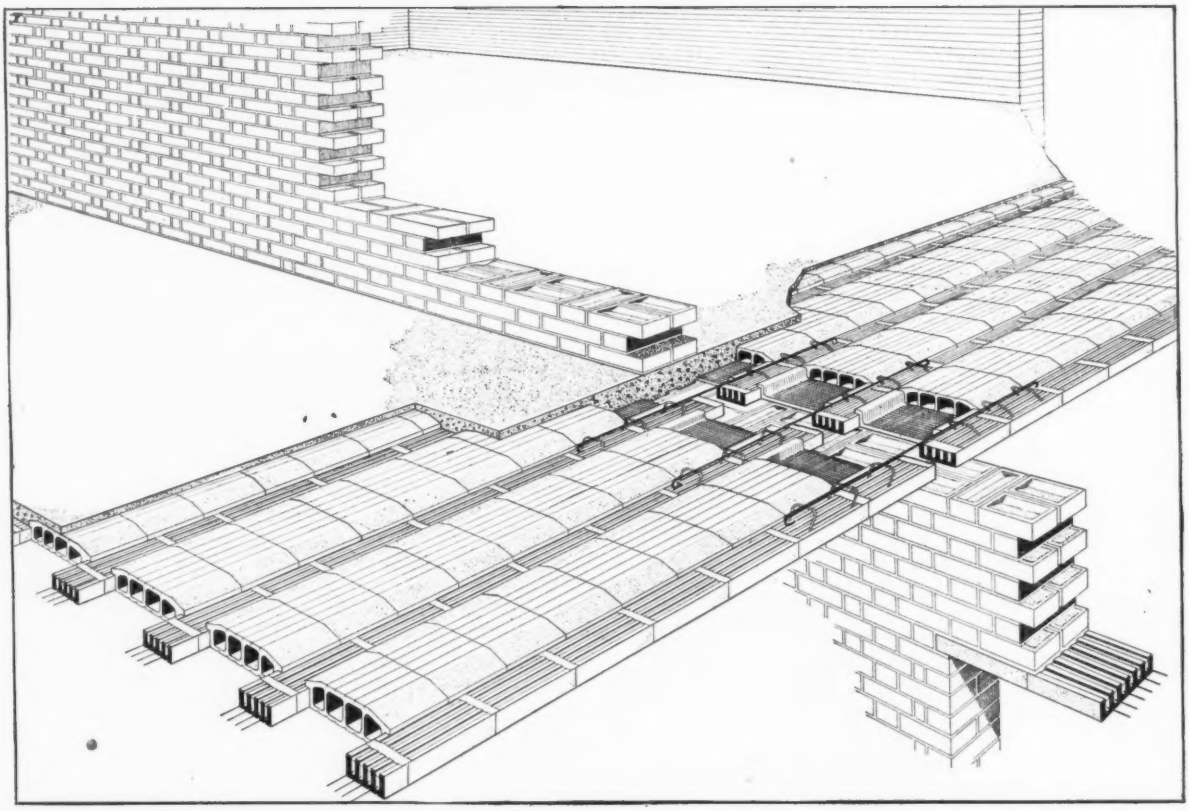
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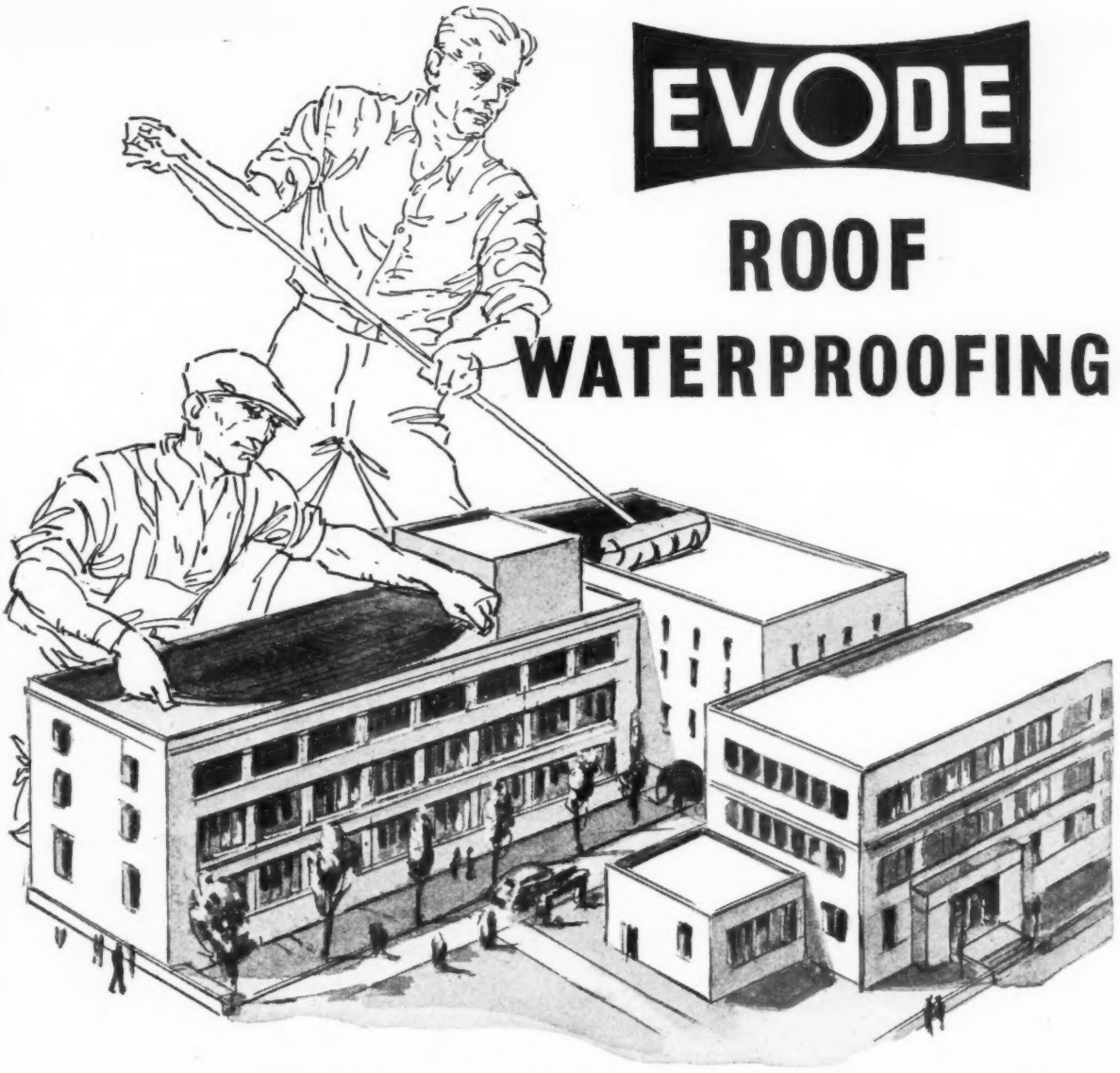
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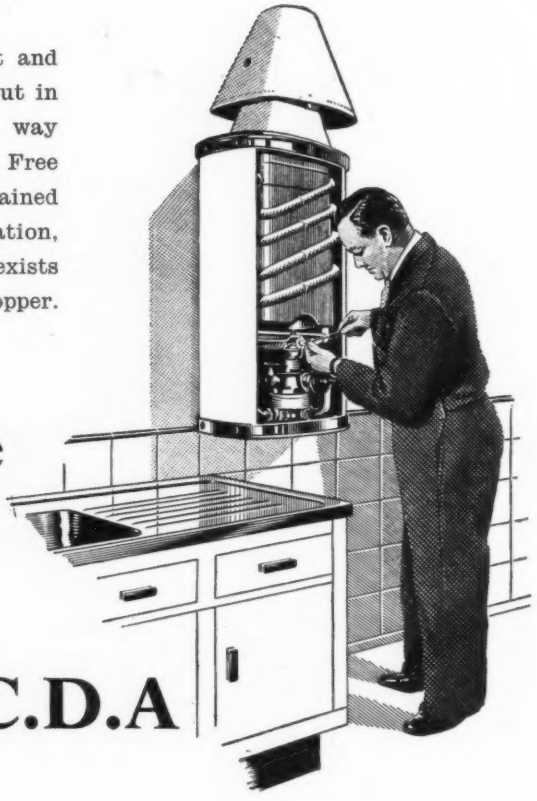
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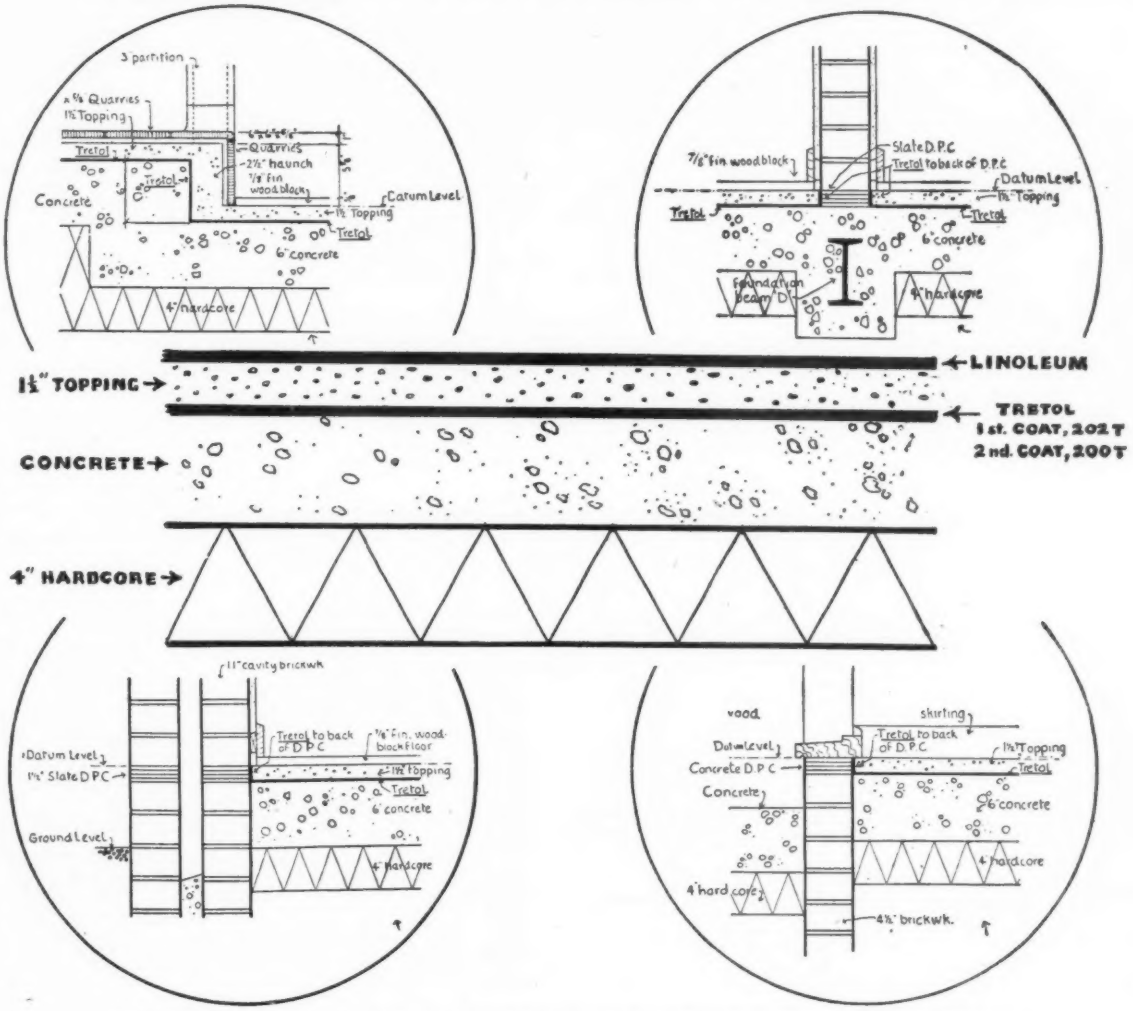
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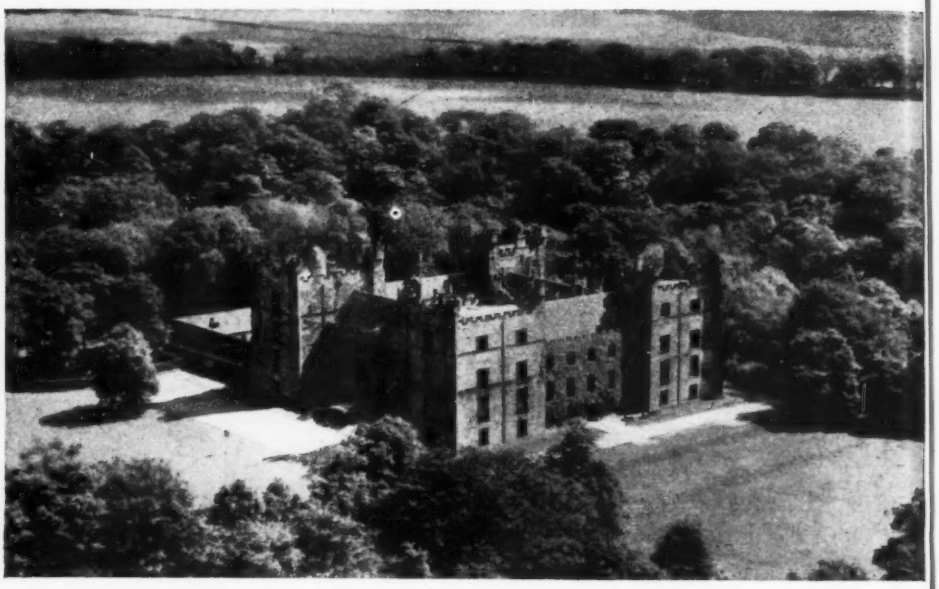
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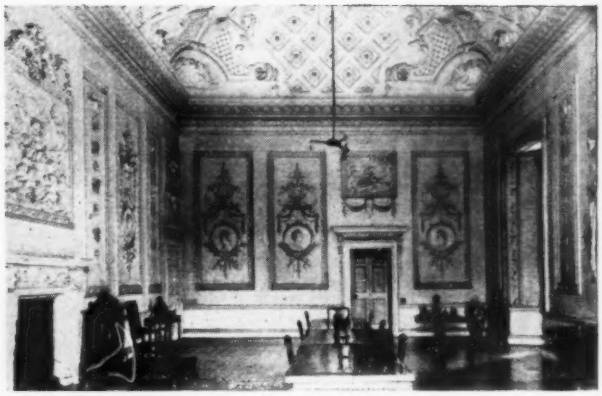


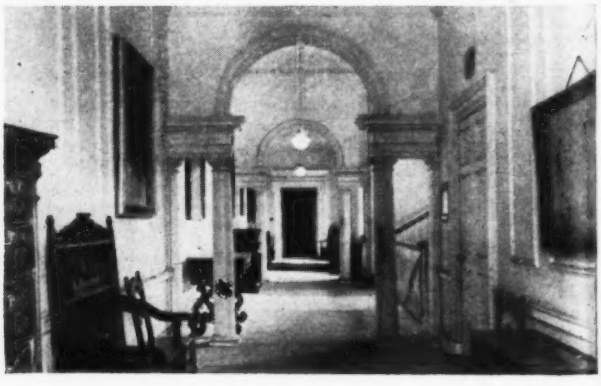
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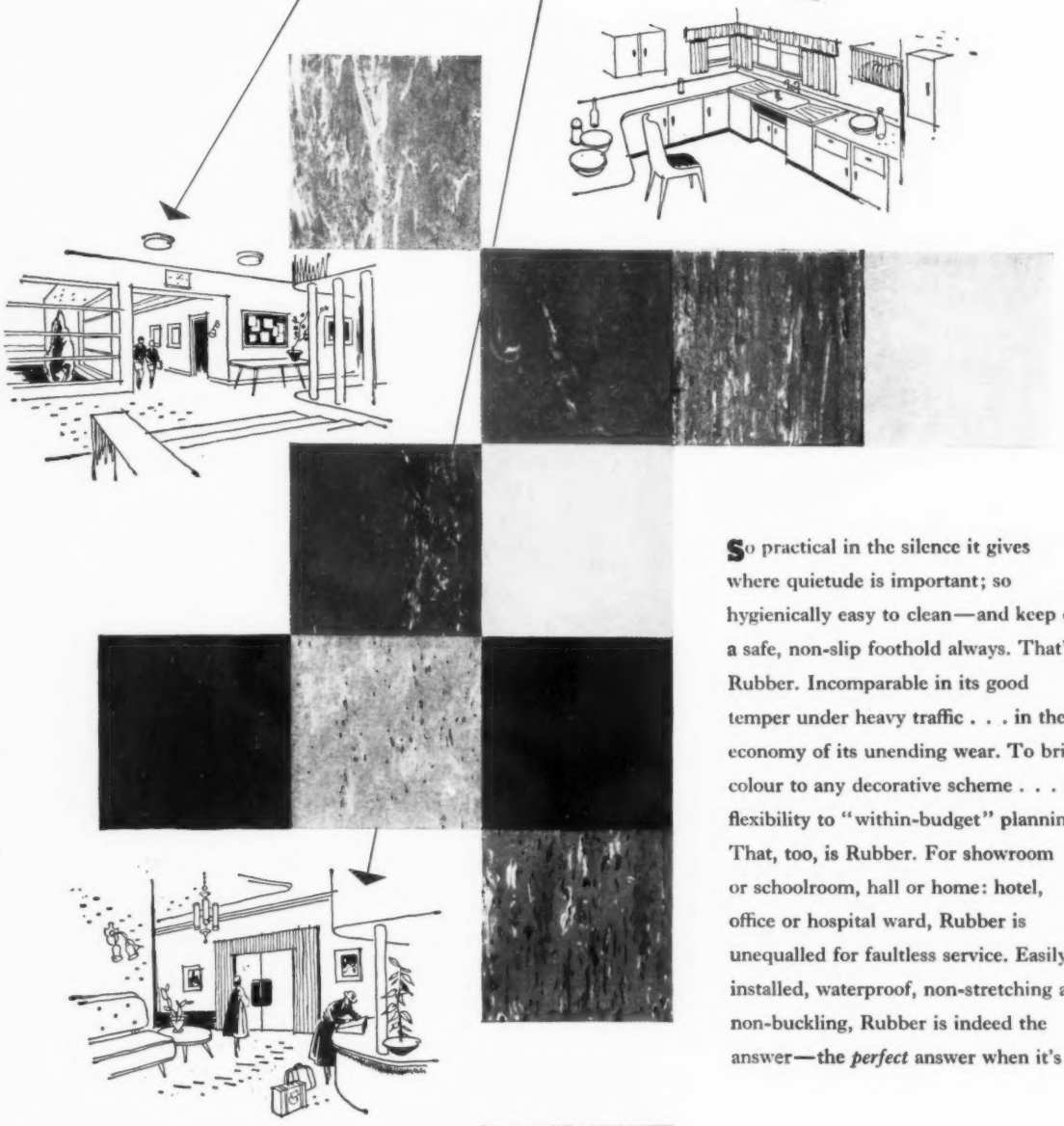
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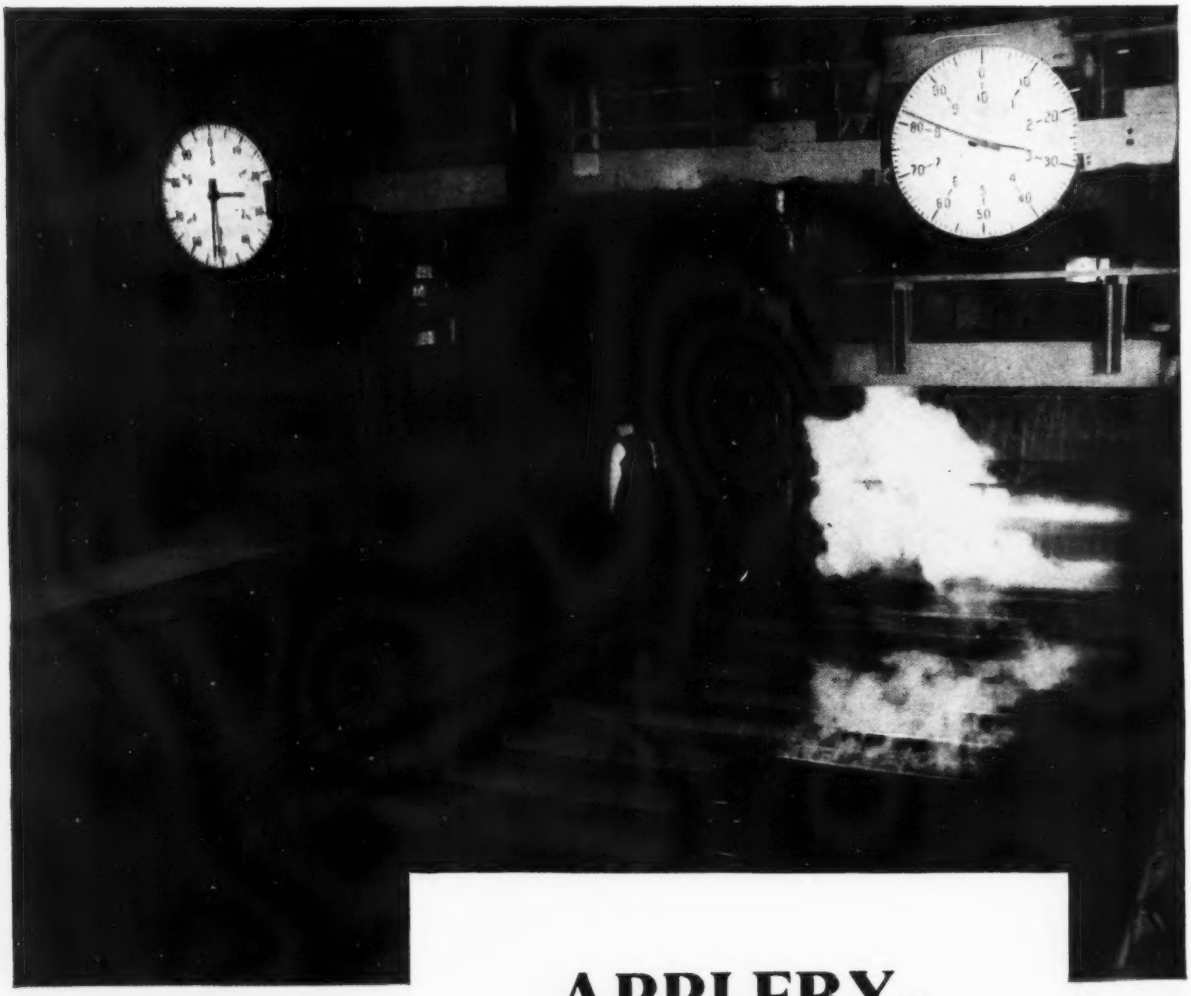
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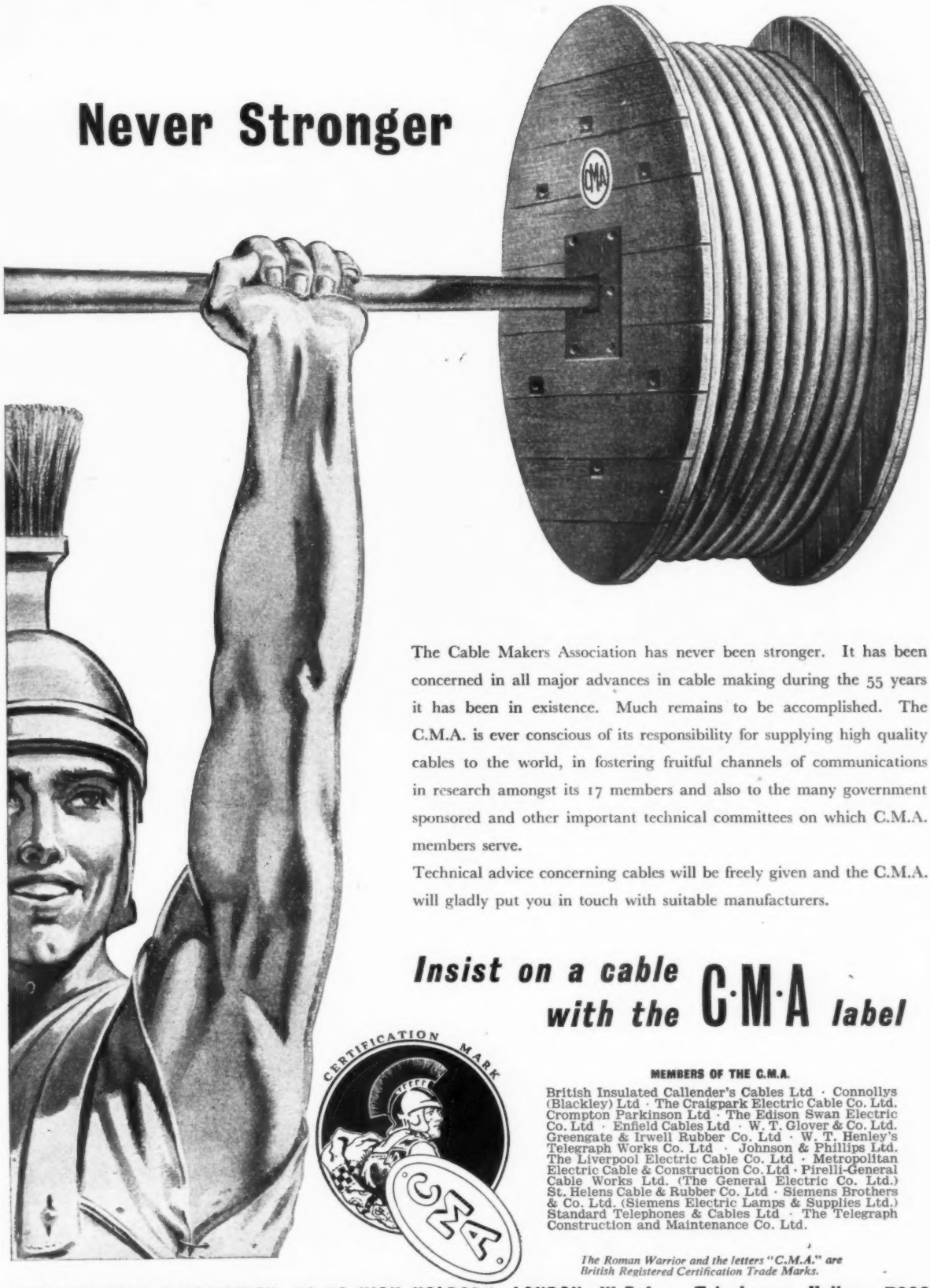
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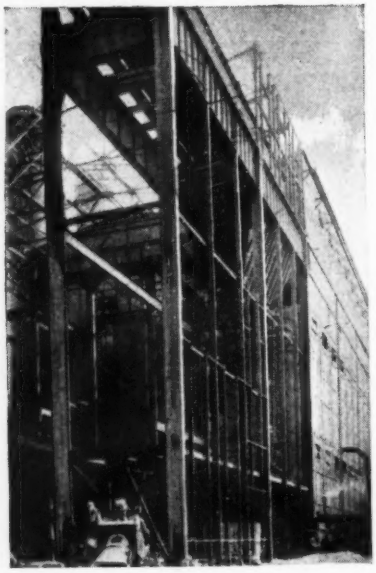
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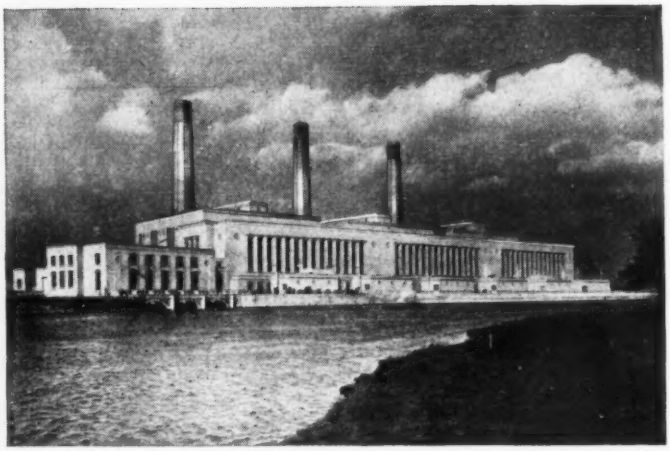
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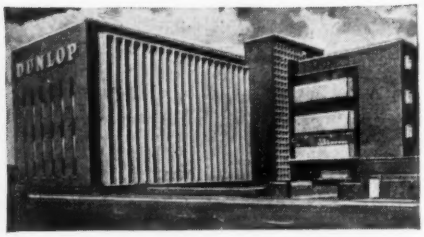


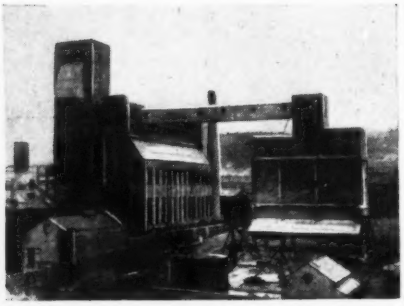
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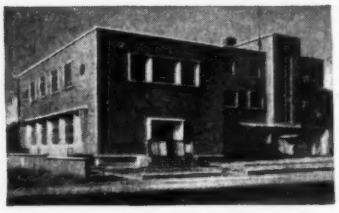




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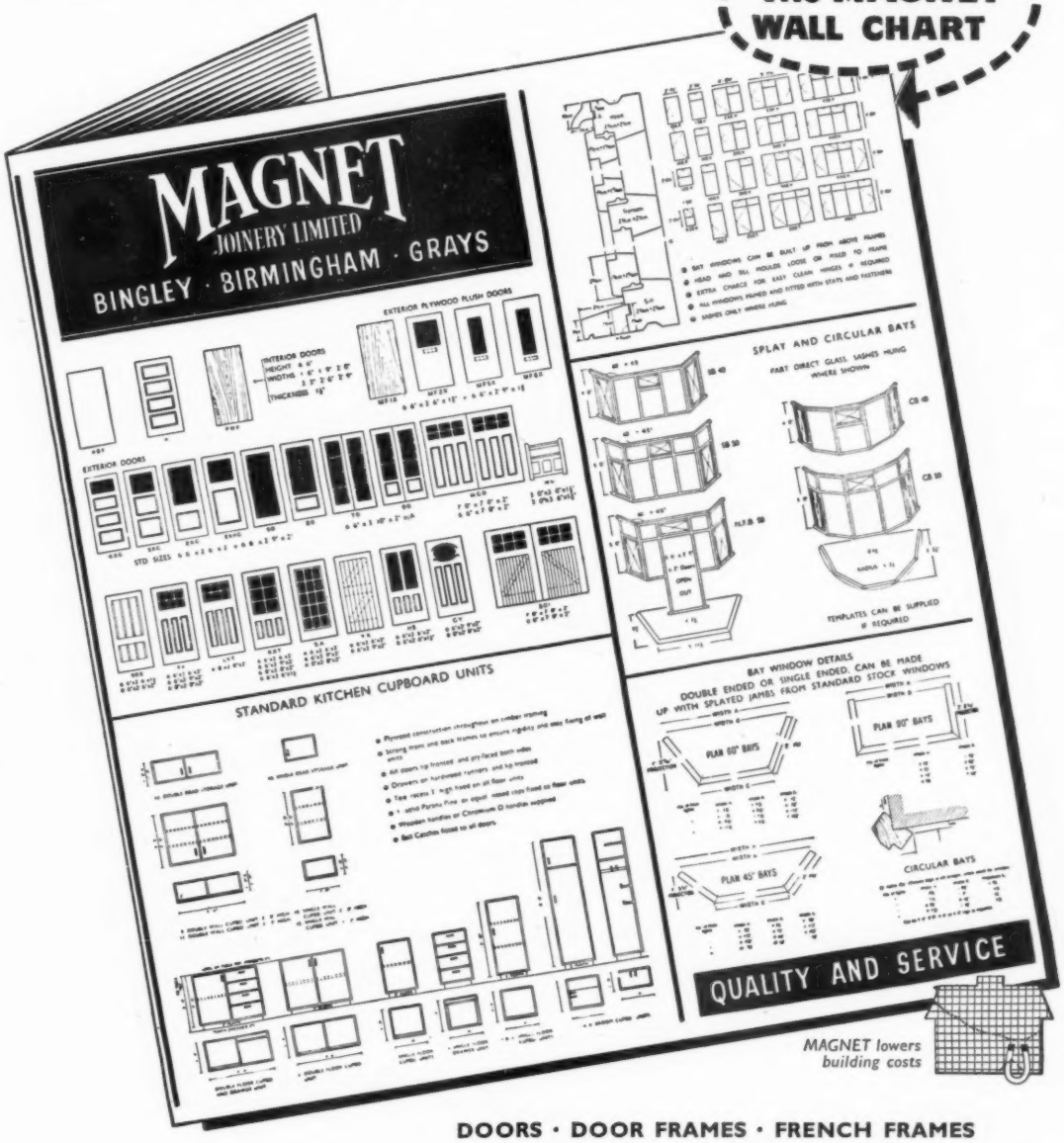


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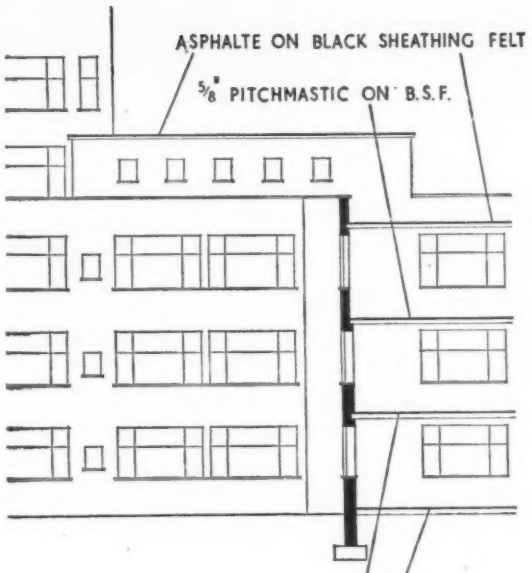
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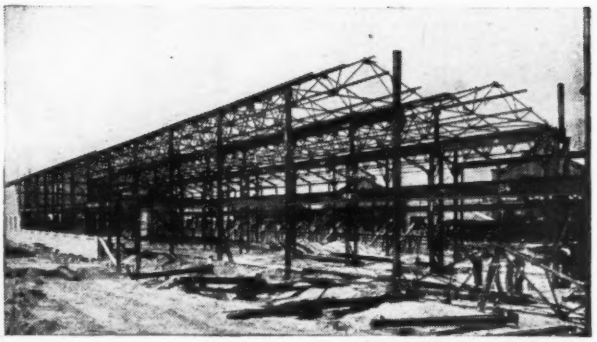
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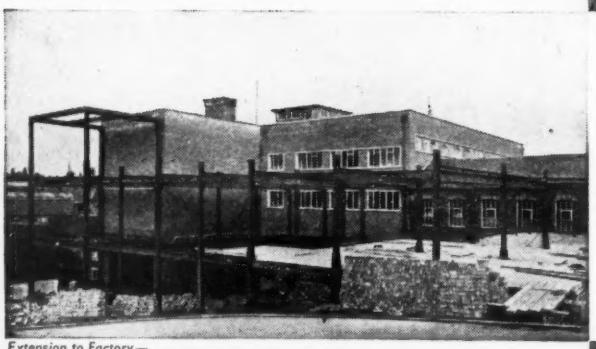
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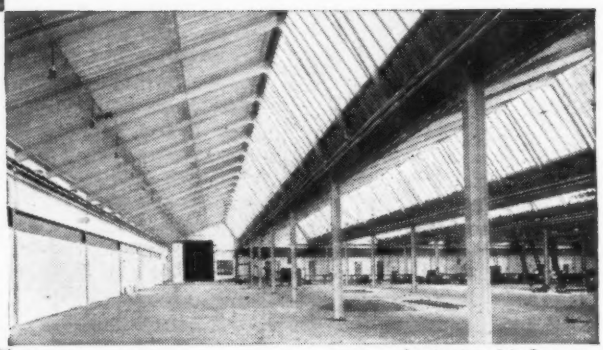
Stores building in course of erection for National Gas & Oil Engines Limited.



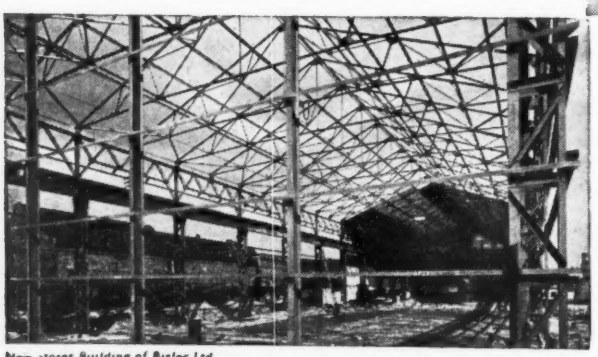
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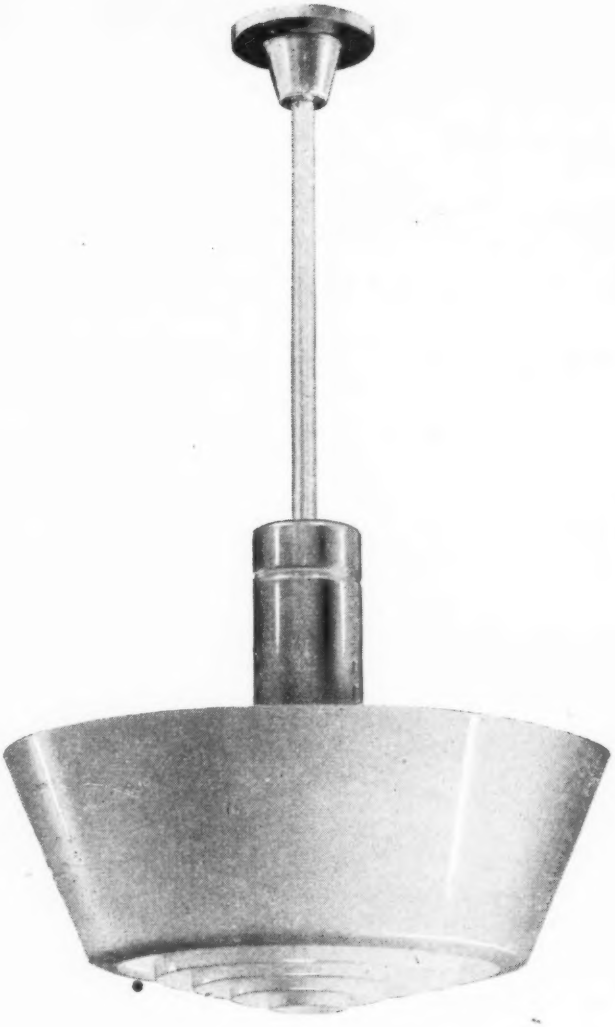
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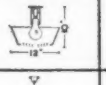
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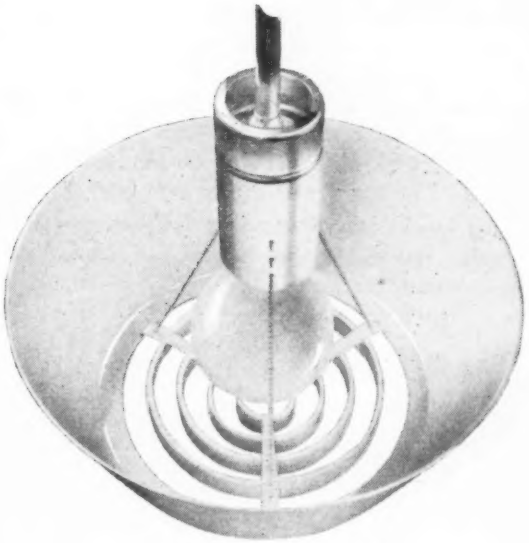
publication V.80.

SPECIFICATION. The 12" diameter louvred diffuser is moulded in a white translucent non-static high temperature plastic, and its position is adjustable for use with a 200w. 150w. or 100w. lamp.

Direct downward lighting is obtained through the louvred aperture, the top is open giving shadowless ceiling illumination. Diffused general lighting with low brightness is obtained through the translucent sides.

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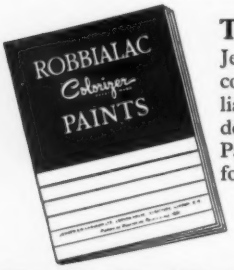
VENTURA DIVISION
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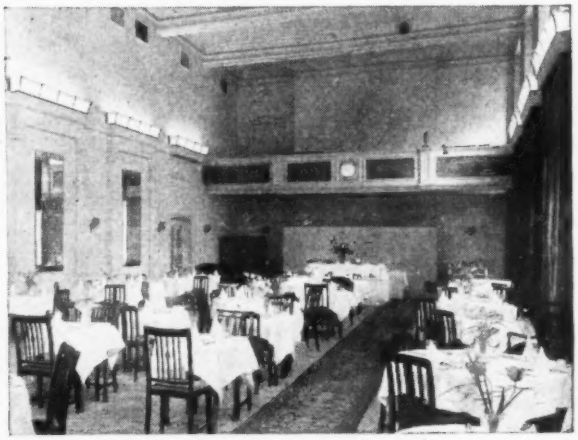
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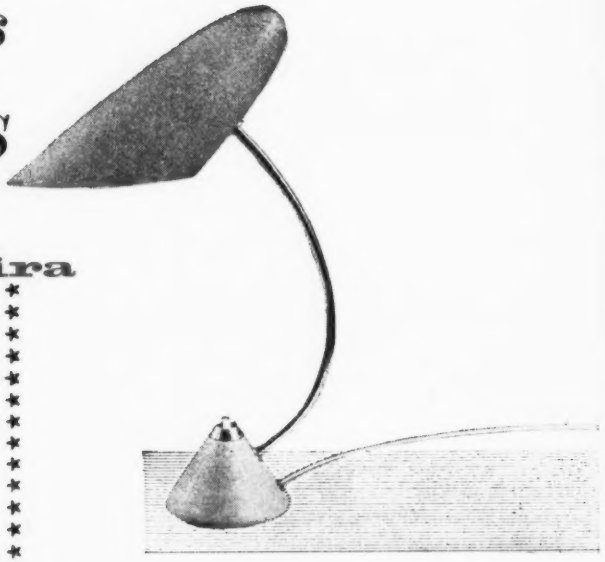
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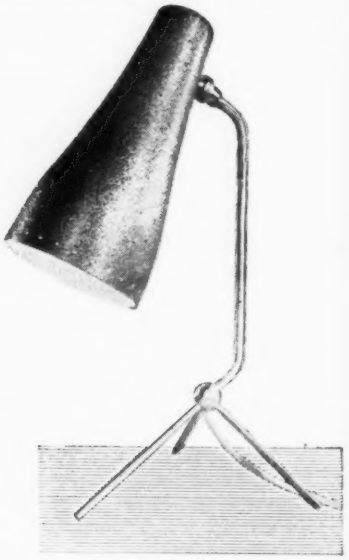
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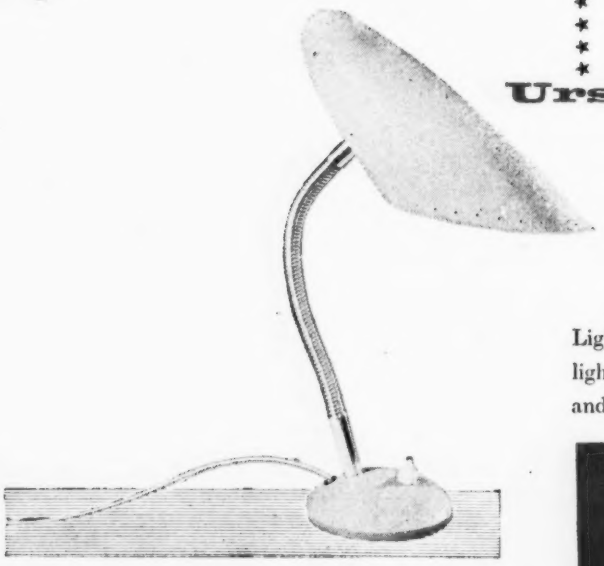
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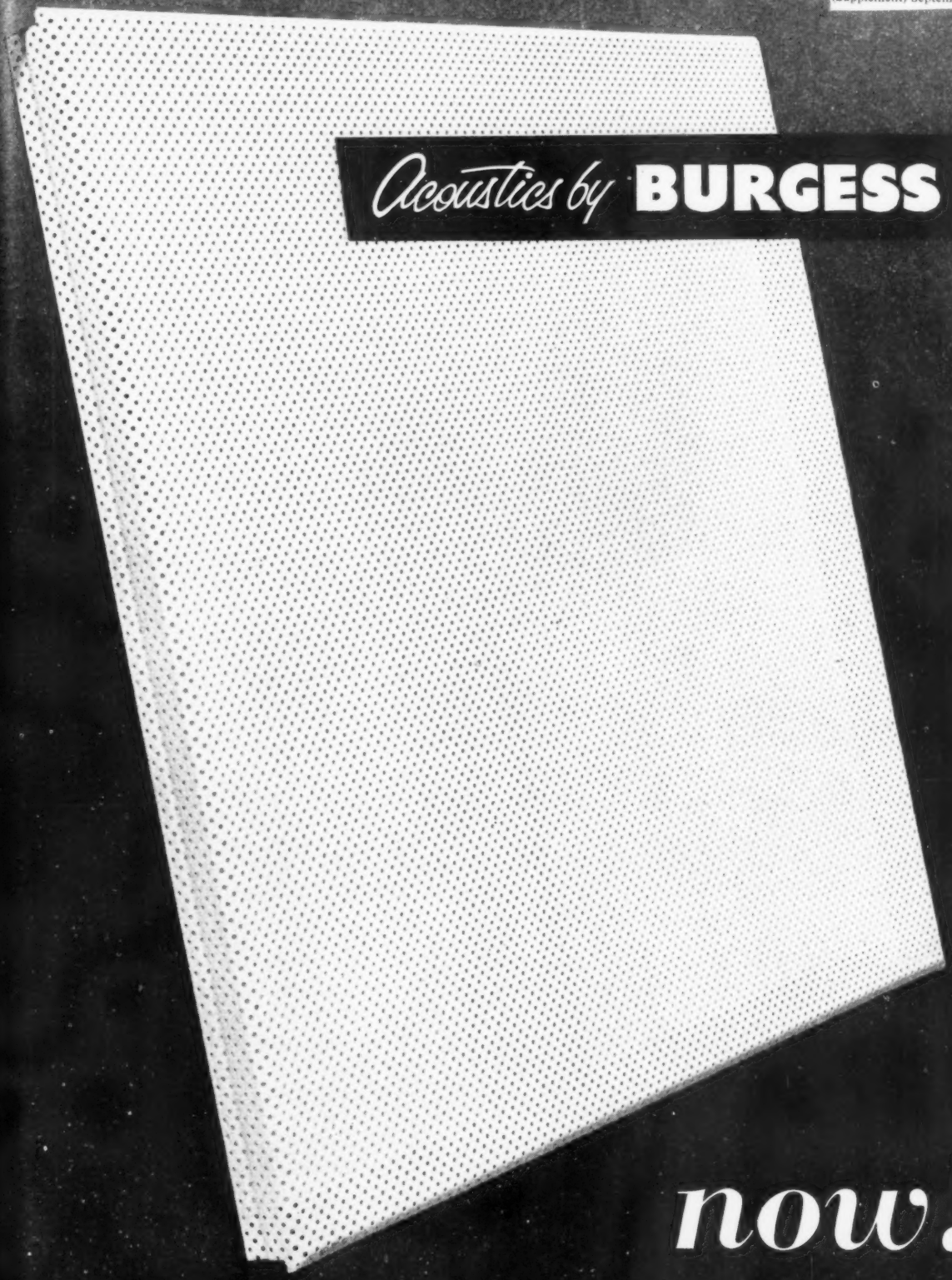
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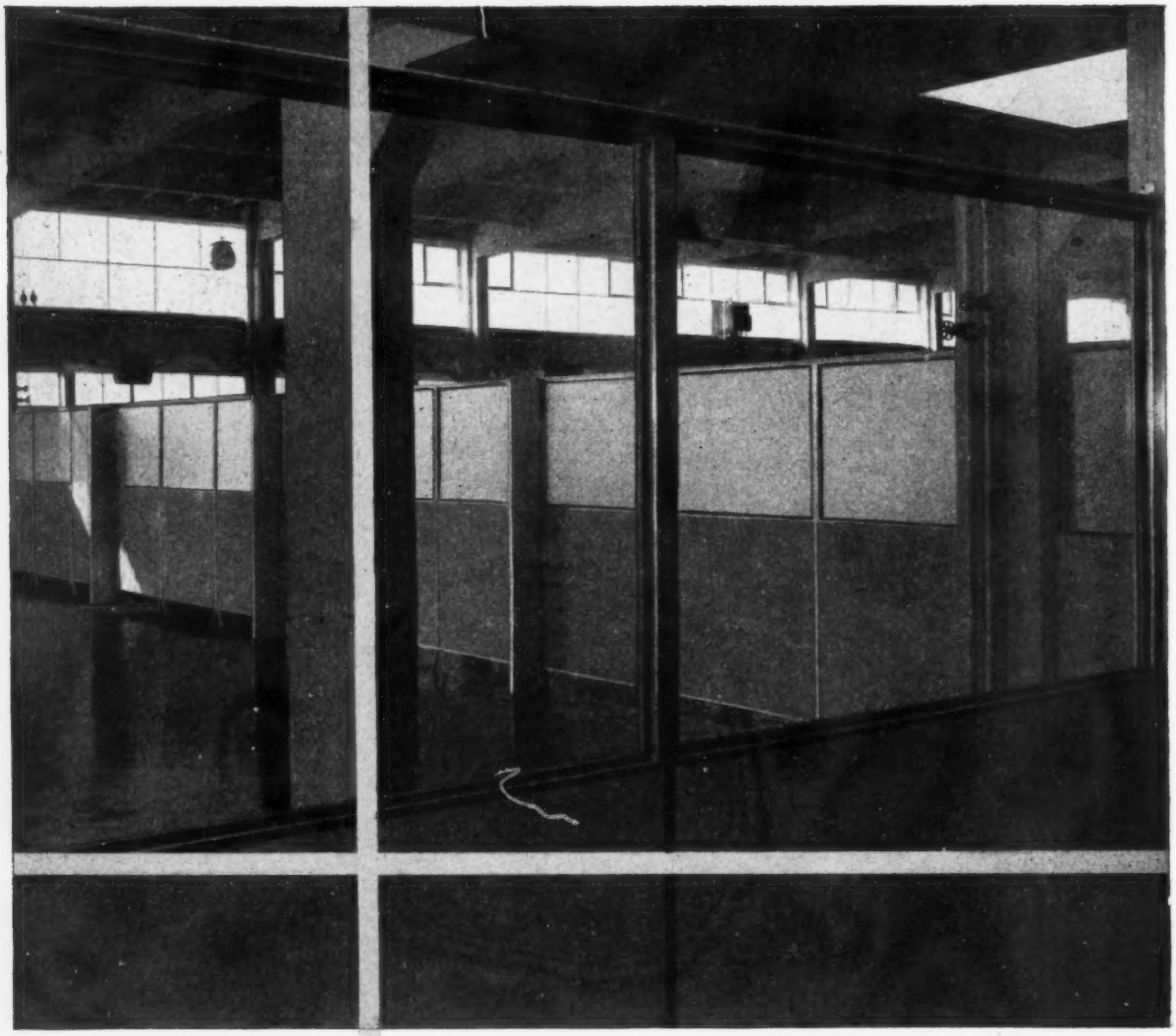


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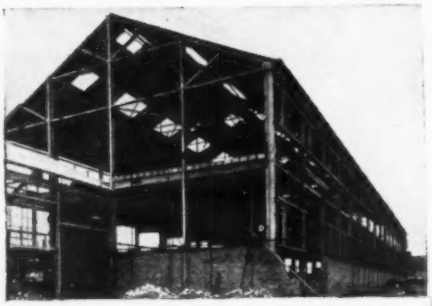
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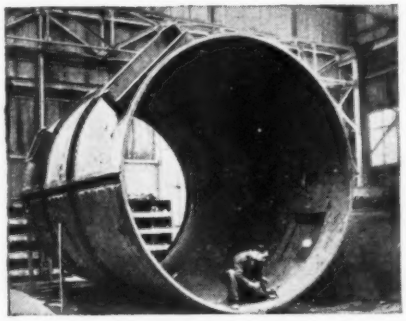
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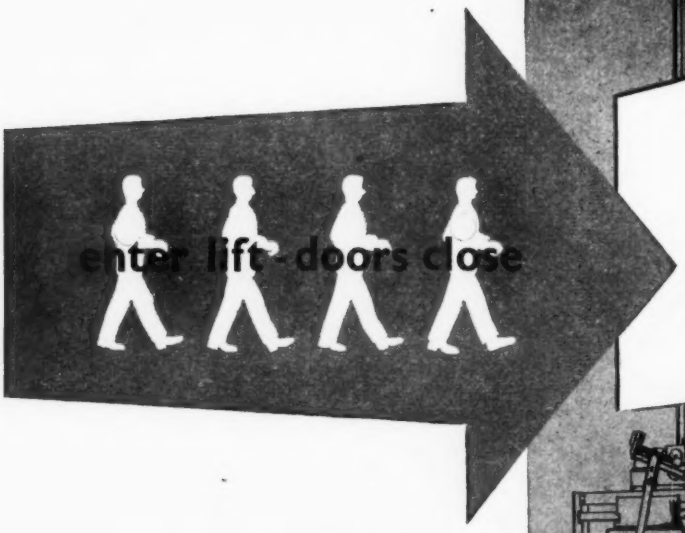
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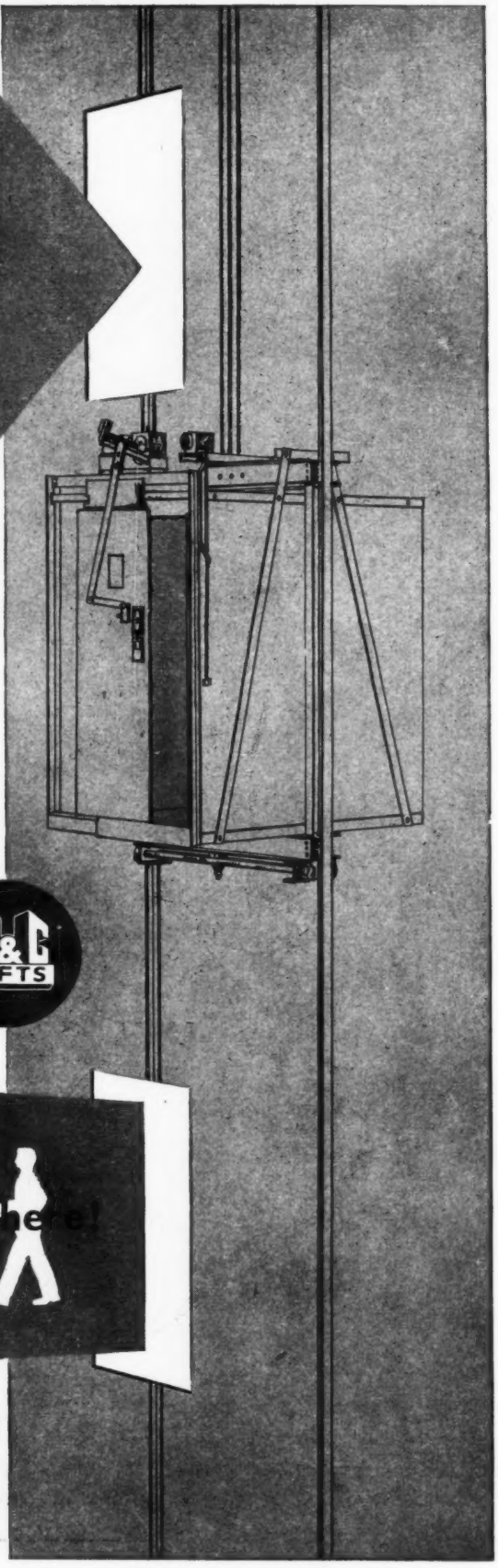
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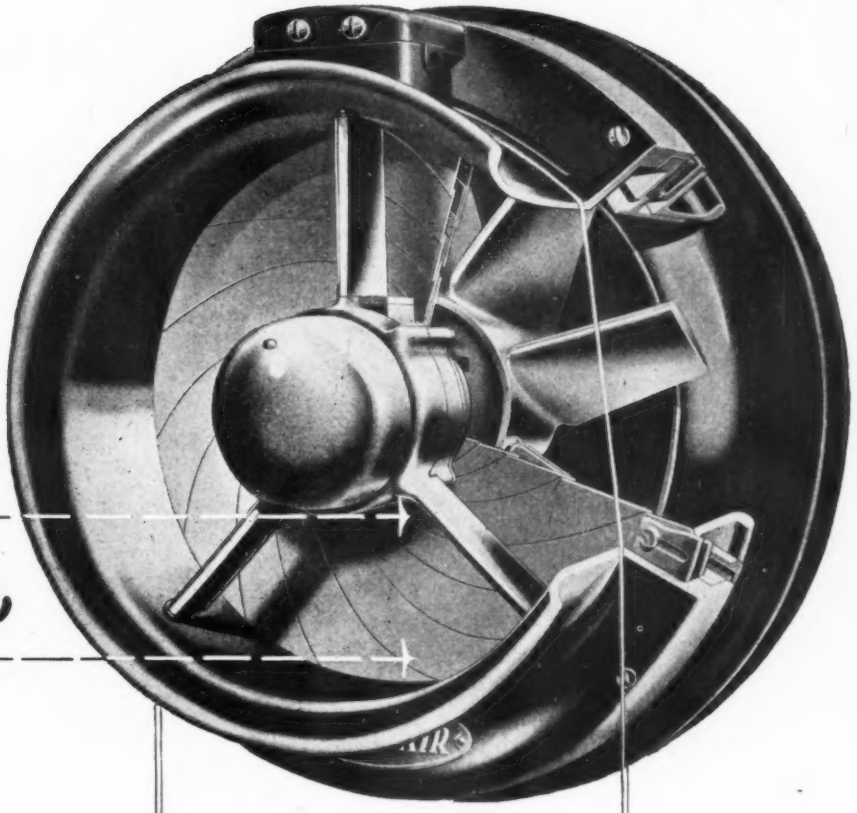
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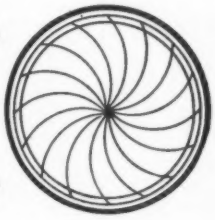
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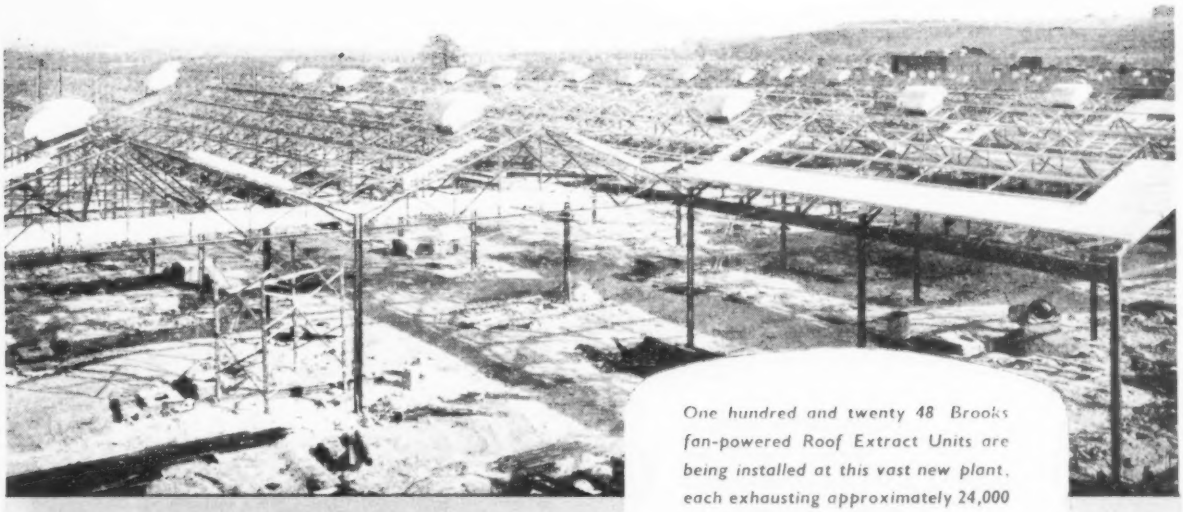
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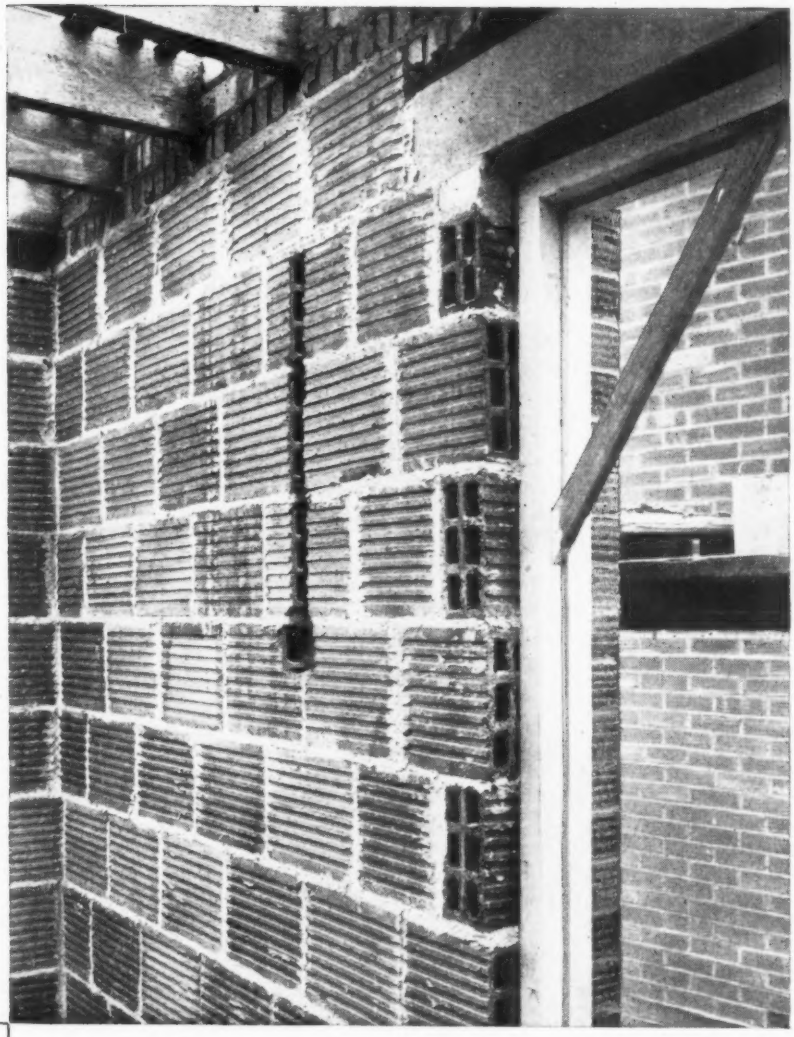
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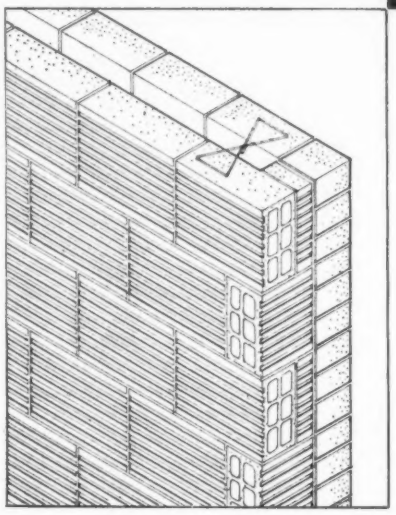
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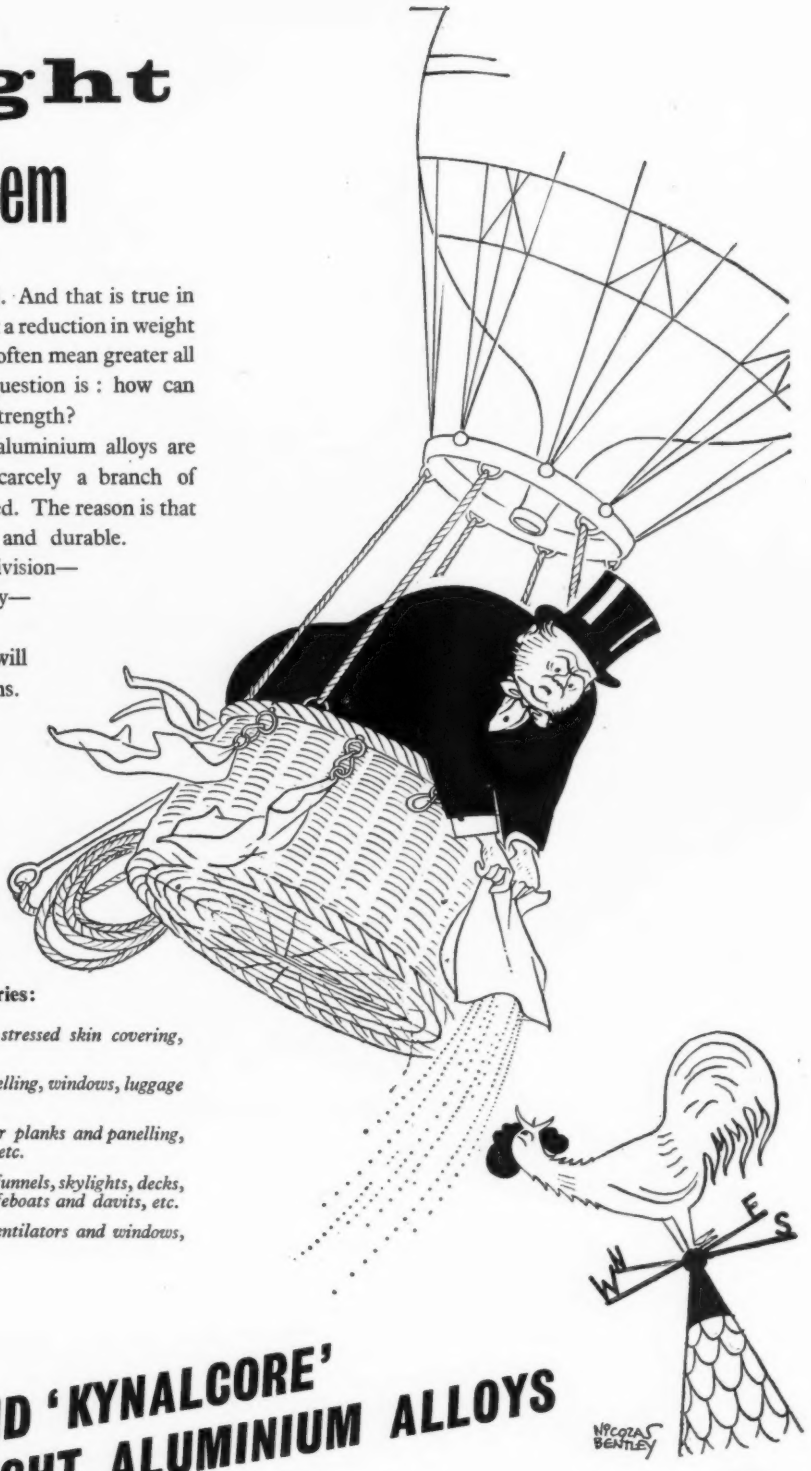
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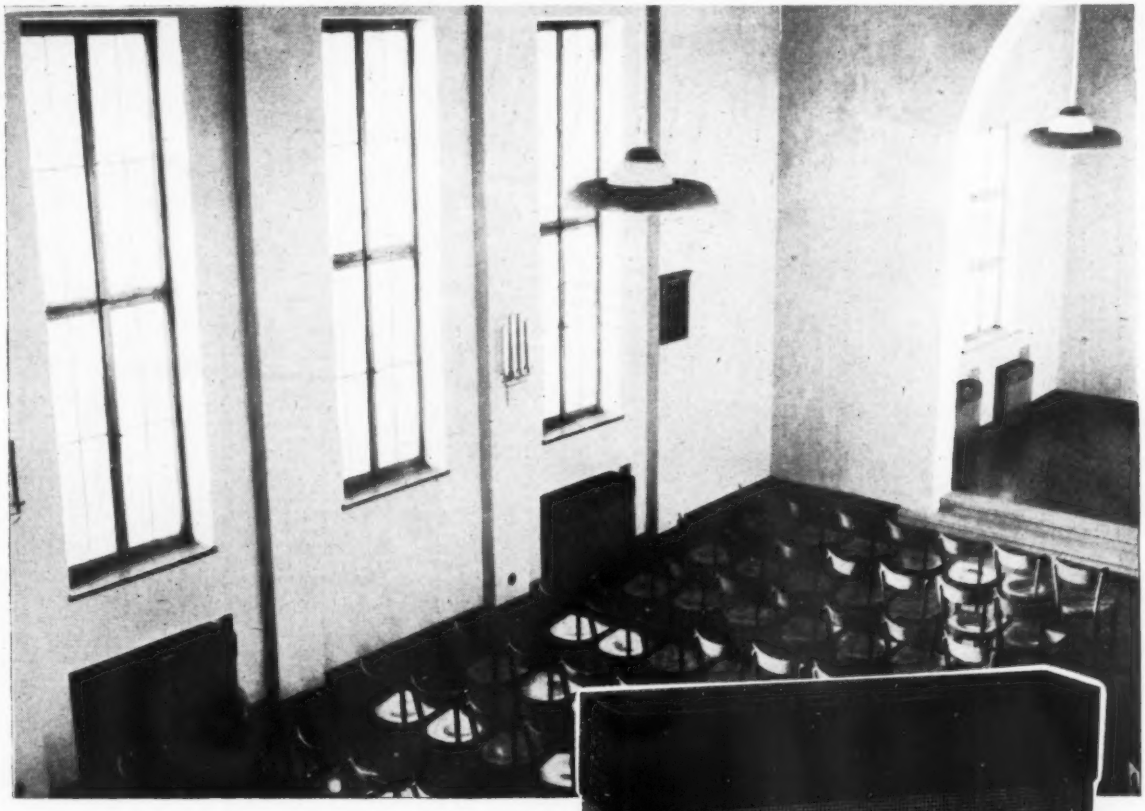
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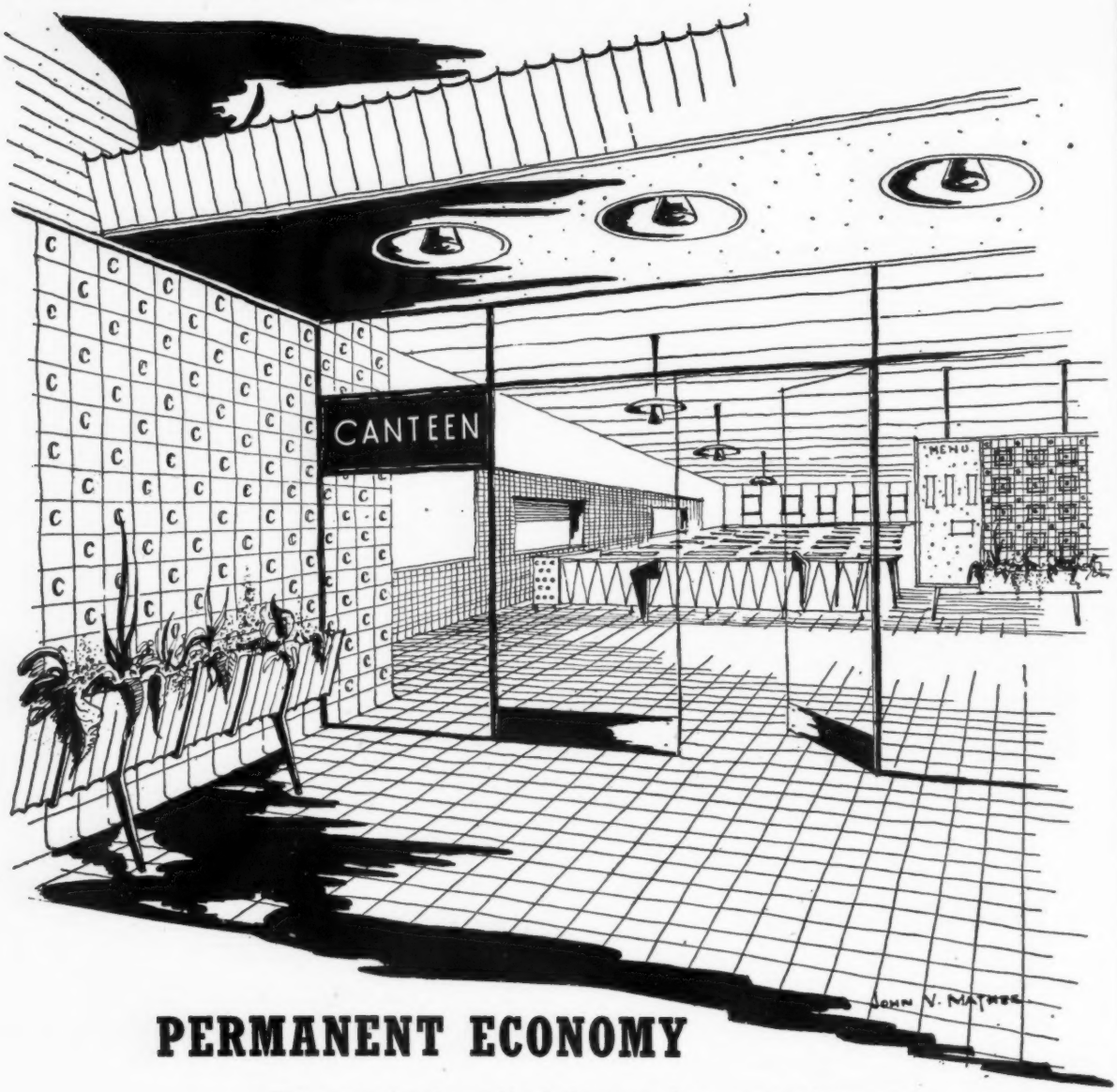
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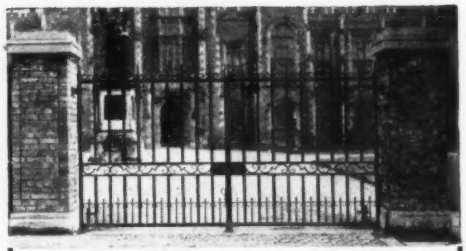
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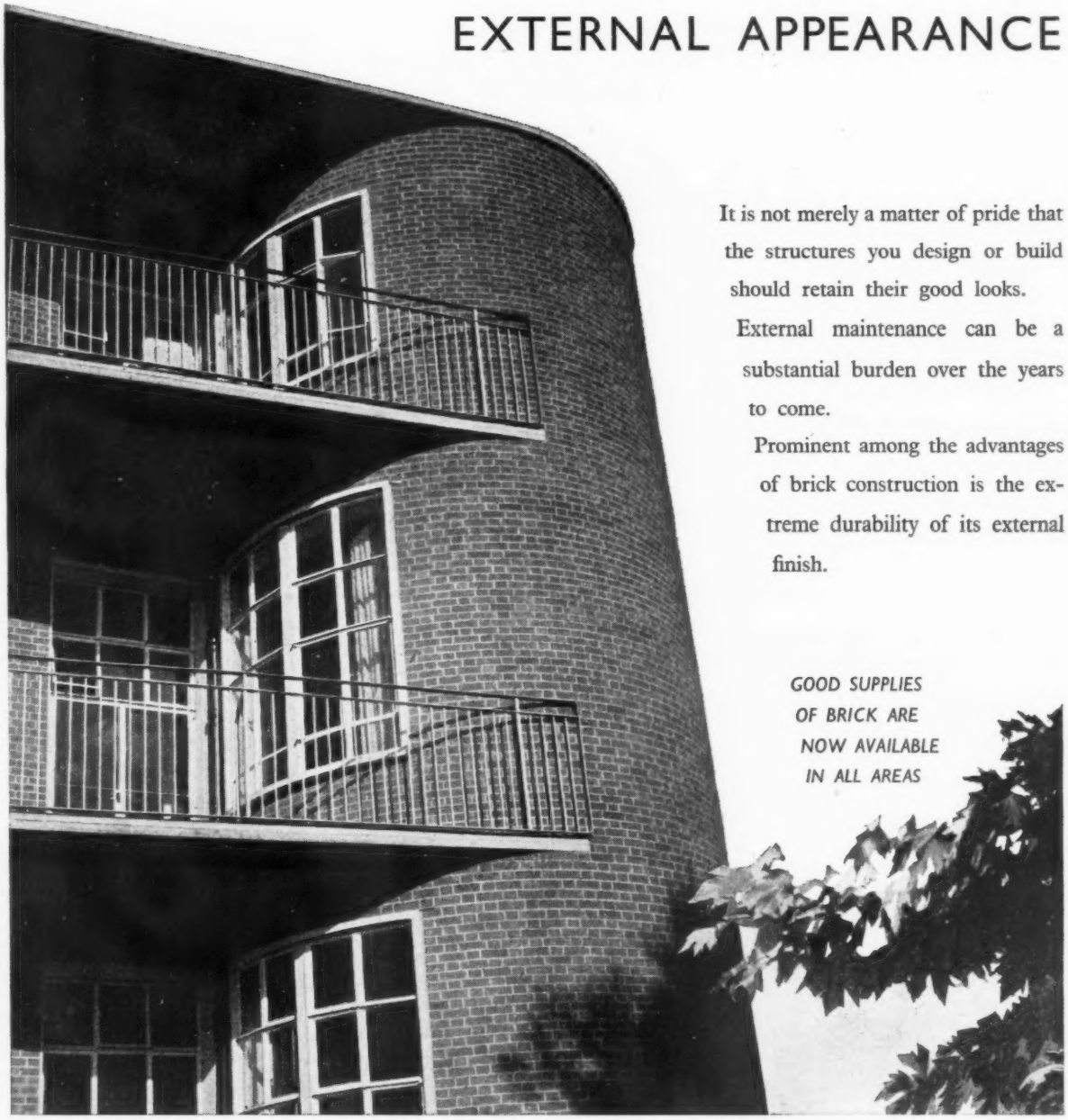
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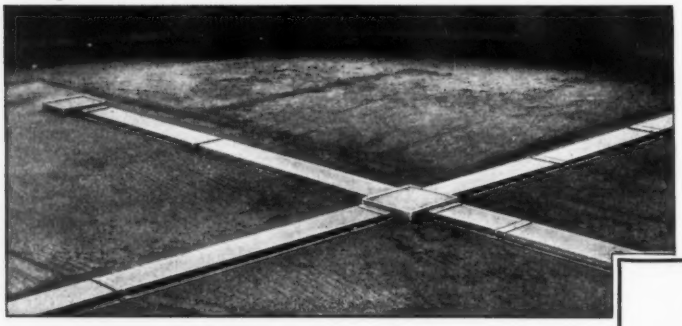
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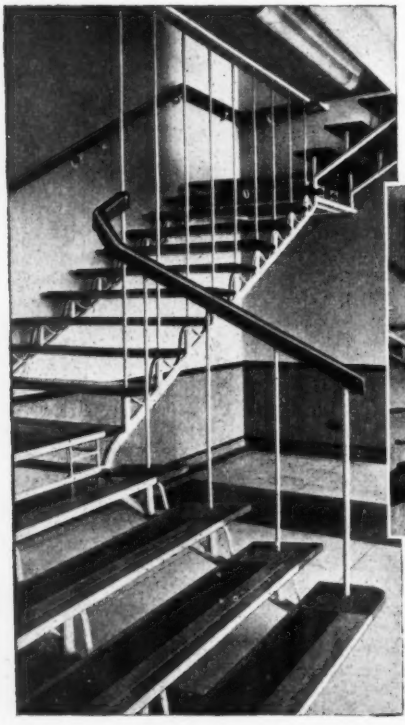
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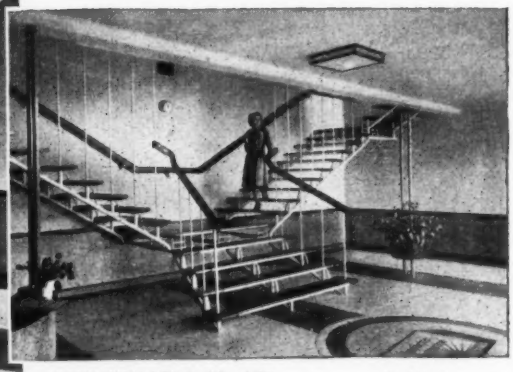
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No. 7 Fire Resistance

A standard test of a **LOADBEARING** wall of 4" Thermalite blocks

Extracts from a report of a Special Investigation carried out by the

Department of Scientific and Industrial Research and Fire Offices' Committee Joint Fire Research Organisation

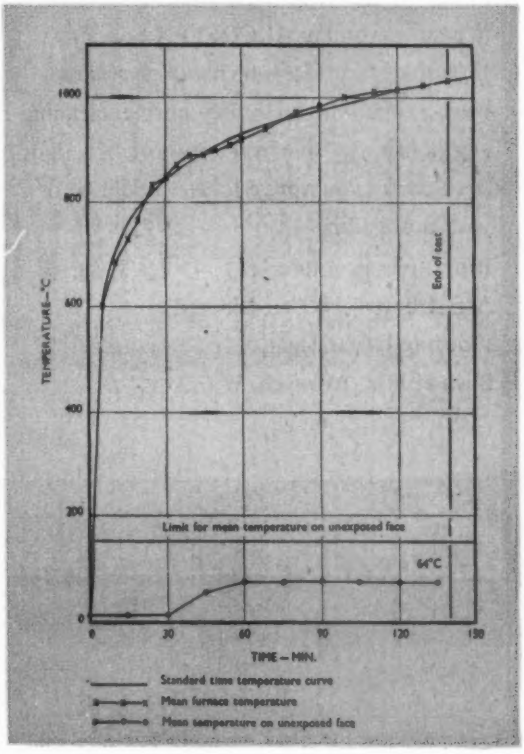
DESCRIPTION OF THE SPECIMEN

The specimen wall of "Thermalite" blocks was built on a reinforced refactory concrete slab to represent one leaf 10 ft. wide by 9 ft. 10 in. high of a cavity wall. The Thermalite blocks having nominal dimensions of 18 in. ×9 in. ×4 in. thick were laid as dry as possible in a mortar of cement/lime/sand in the proportions by volume of 1:2:9. Plaster ½ in. thick was applied to one face in two coats, the undercoat having the same composition as the bedding mortar and the finishing coat consisting of two parts of anhydrous gymsum plaster to one part of lime putty by volume.

Thermalite is a lightweight aerated concrete building material in block form which is noncombustible. Details of its composition have been given and are recorded on Joint Fire Research Organisation File No. F.1025/10/126. It is stated that it complies with the strength requirements of B.S.834, the compressive strength as delivered being 750-800 lb./in.^{2}. The density is approximately 51 lb./ft.^{3}.

TEST PROCEDURE

A uniform load of 1220 lb./ft. run was applied to the wall and maintained constant throughout the heating period. The vertical edges of the wall were unrestrained. As required by B.S.476, re-application of the test load was made 48 hours after the fire test.



Test Results

The wall withstood re-application of the test load 48 hours later. The load was then increased until failure occurred by buckling of the wall at 11.3 tons.

The mean furnace temperature is shown in graph in comparison with the standard time-temperature curve of B.S.476. In the same graph is plotted the curve of mean temperature for the unexposed face.

At two hours the rise in mean temperature of the unexposed face was 64 Centigrade degrees, and the rise in temperature on a mortar joint was 69 Centigrade degrees.

CONCLUSIONS. A loadbearing wall of 4 in. "Thermalite" blocks having ½ in. of plaster on the heated face as described in this report was subjected to a fire resistance test complying with British Standard No. 476:1953. The specimen wall satisfied all the test requirements for 2 hours 20 minutes and therefore provided fire resistance of the 2 hour grade.

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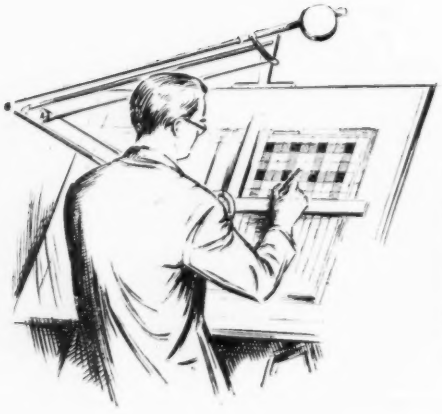
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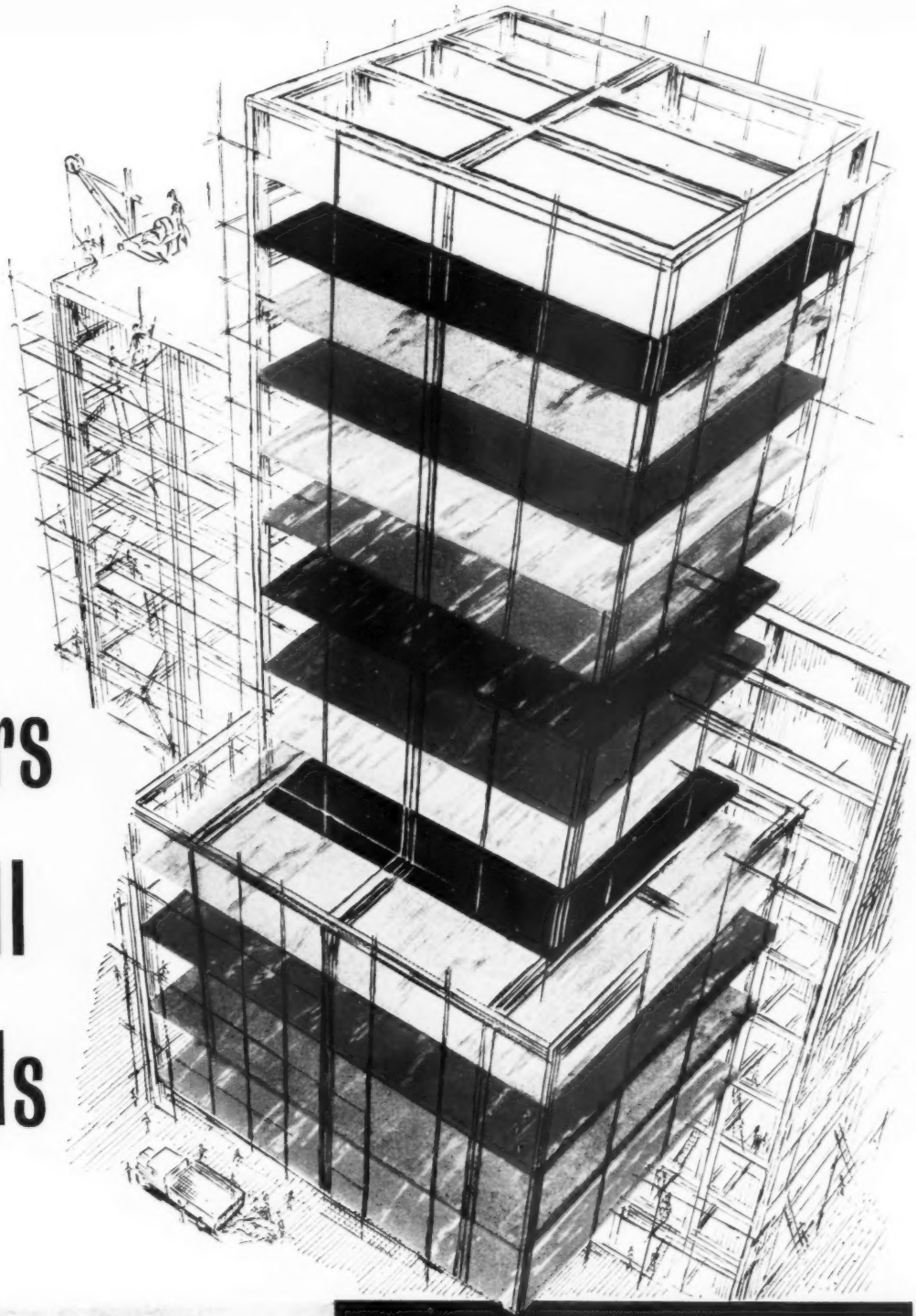
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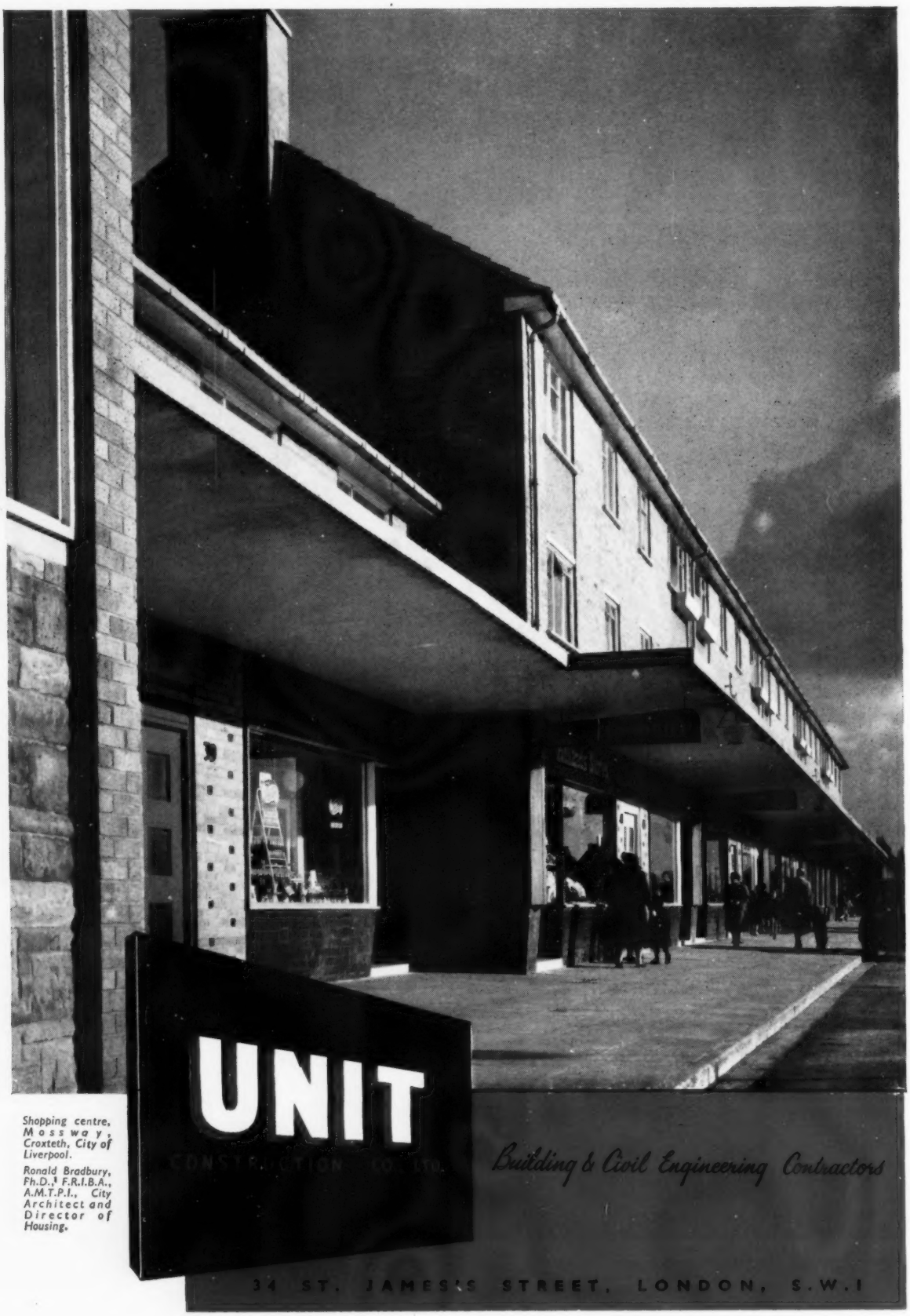


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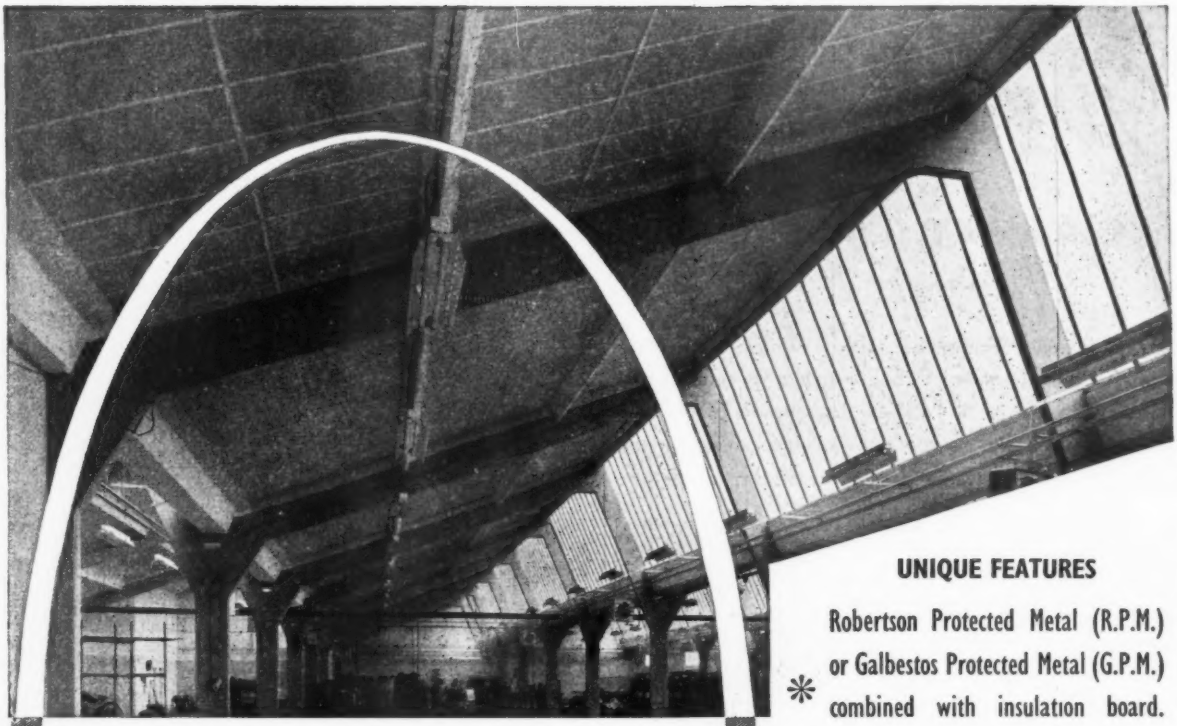
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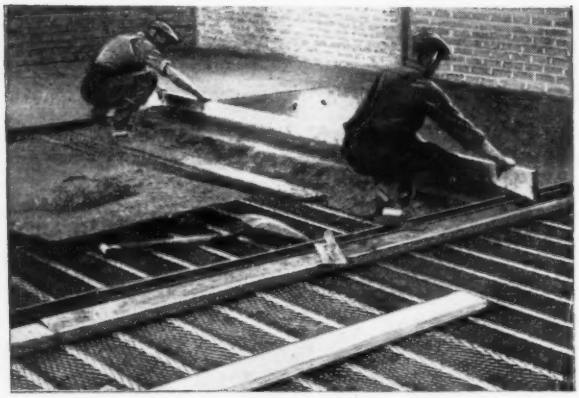
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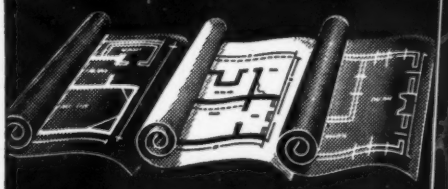
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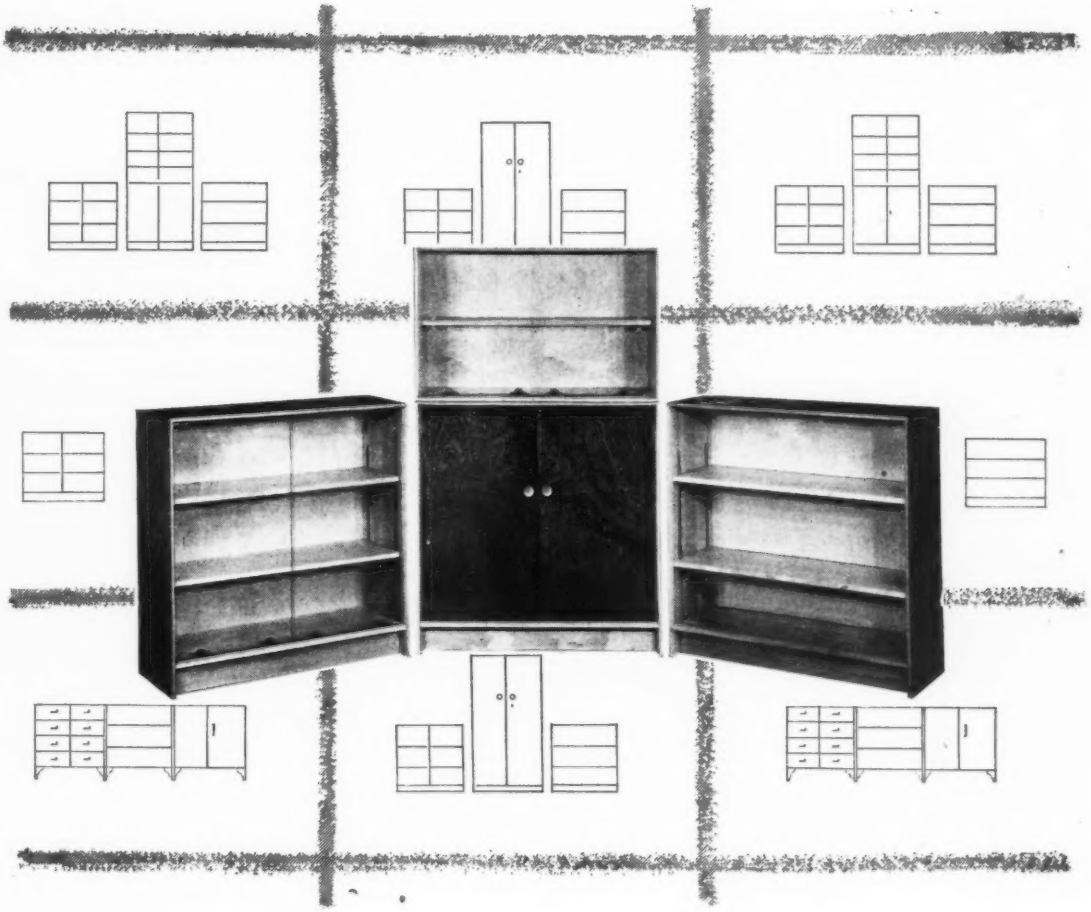
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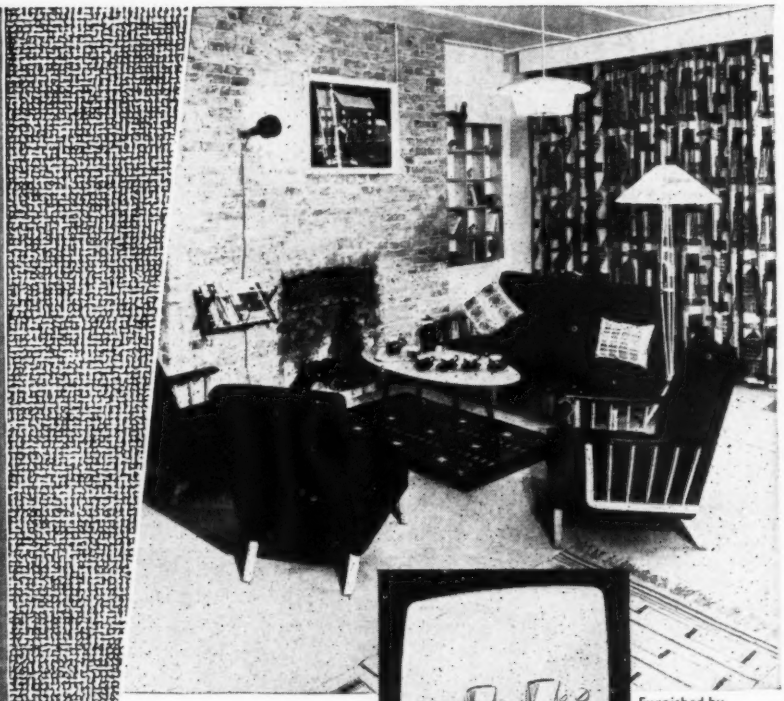
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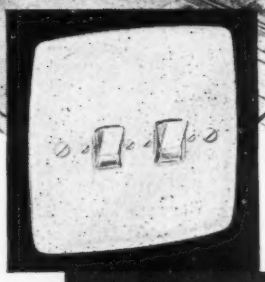
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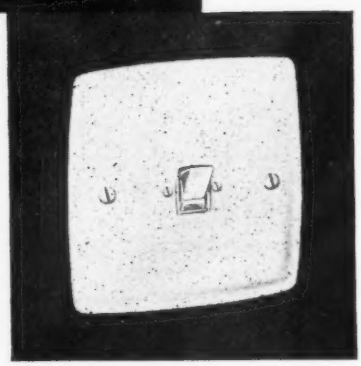
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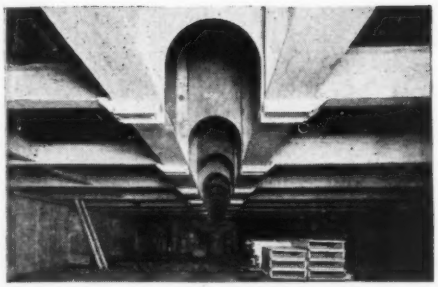
MINIAC switch assemblies

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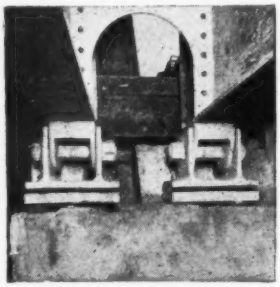
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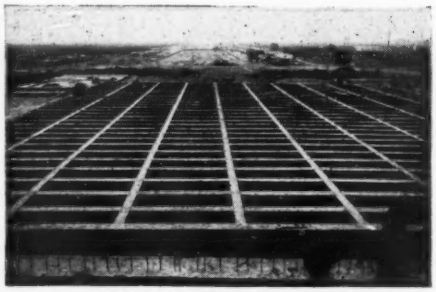
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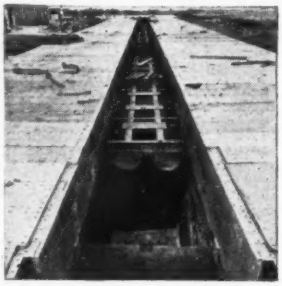
1 *View of 70-ft. long Twin Welded Girders underneath Arrested Landing Deck.*



2 *Rocker Bearings at one end of the Girders.*



3 *Part of Deck Supporting Structure prior to erection of Steel Plating. Approx. 730 tons of steelwork were used in this contract.*

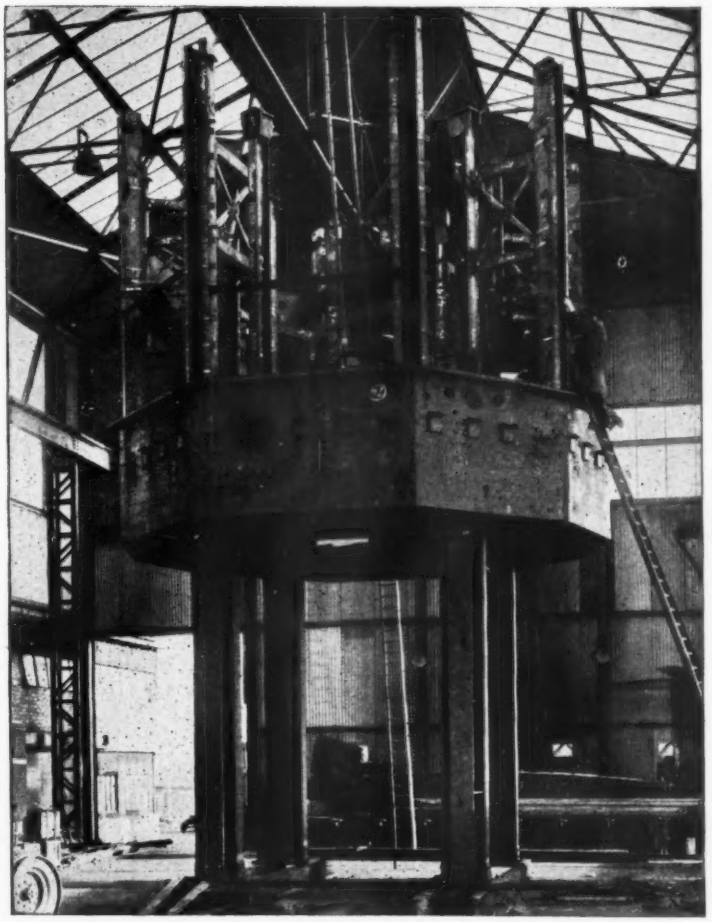


4 *View of Raised Catapult Deck.*



5 *Another view of Deck, showing the Well. This construction involved approx. 550 tons of steelwork.*

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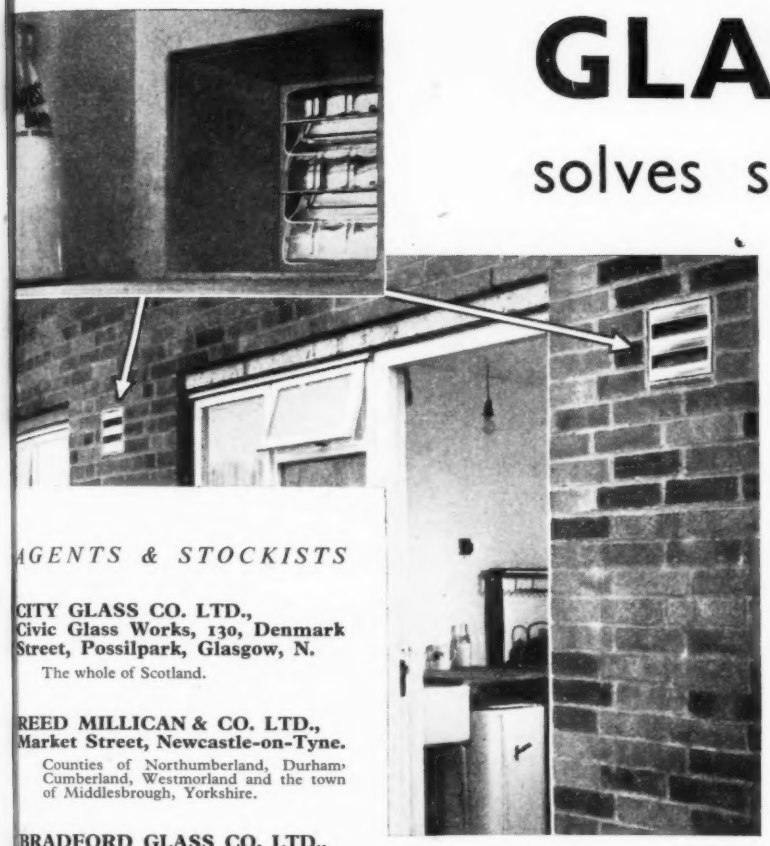
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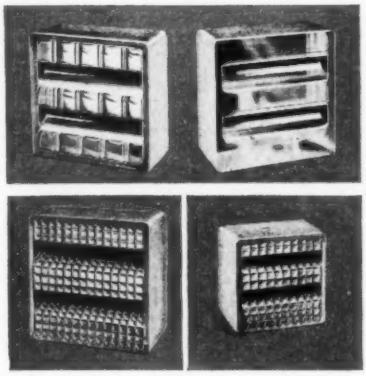
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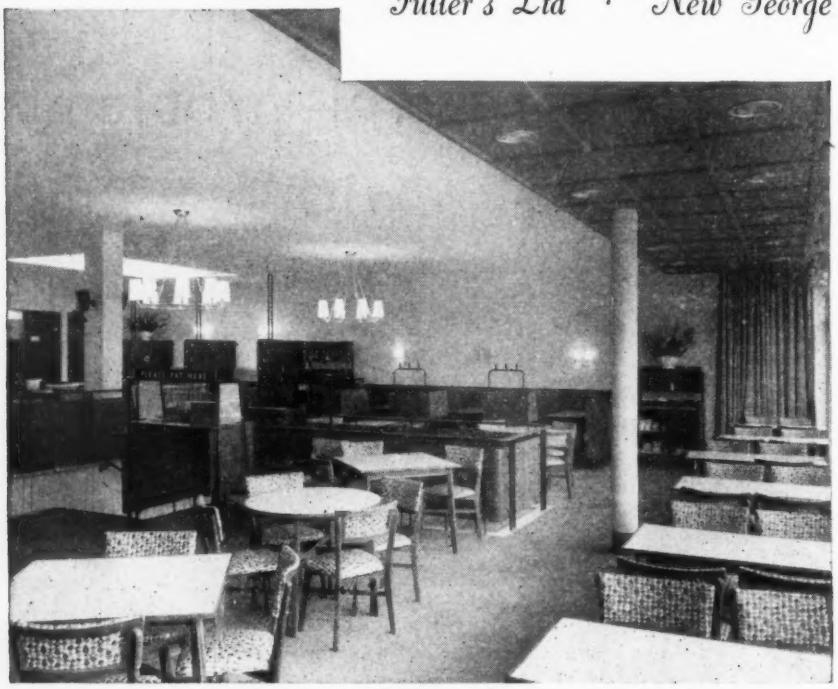
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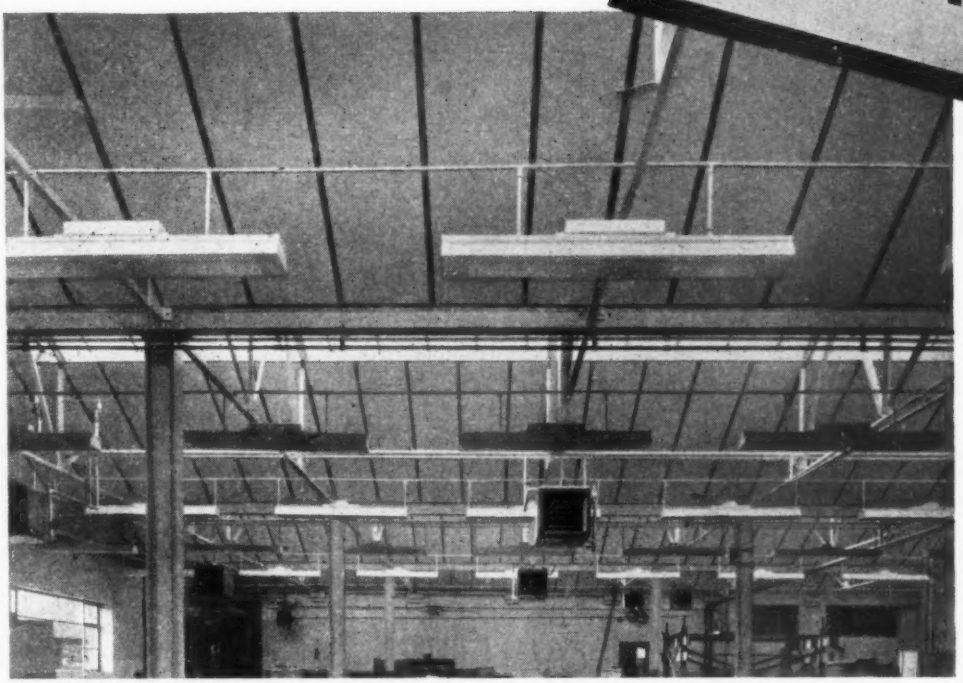


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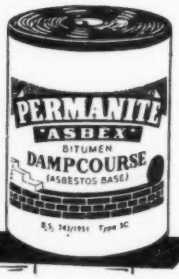
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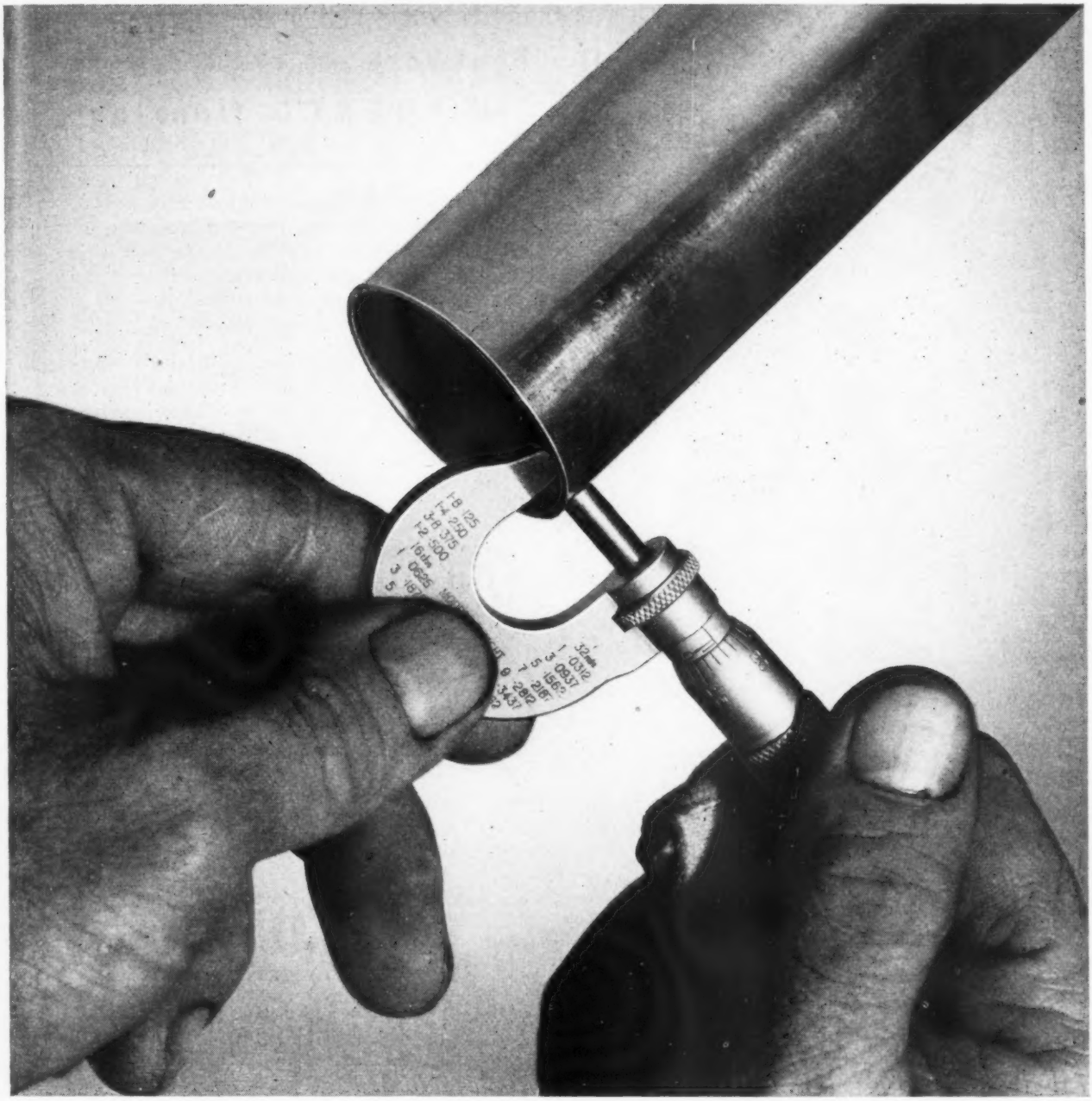
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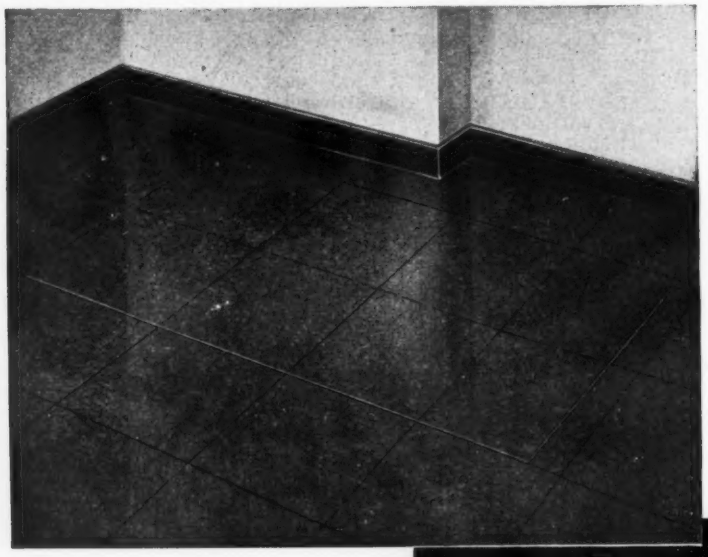
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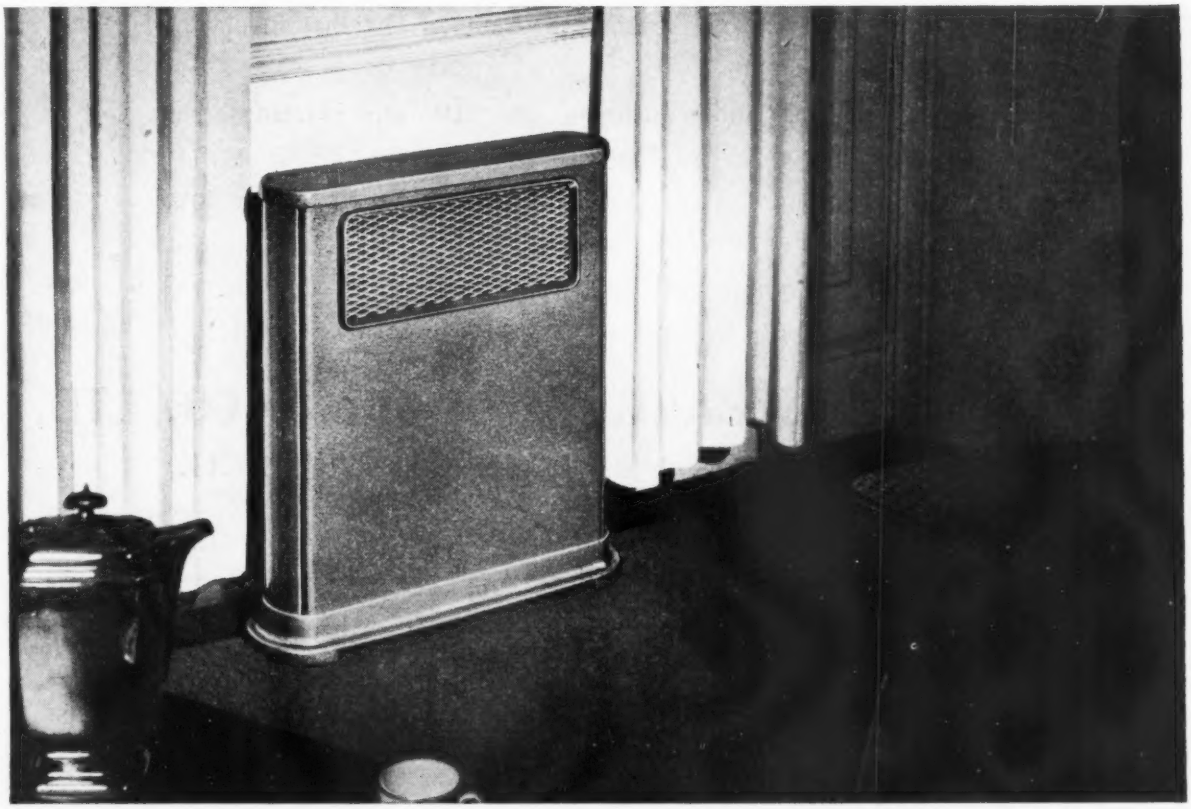
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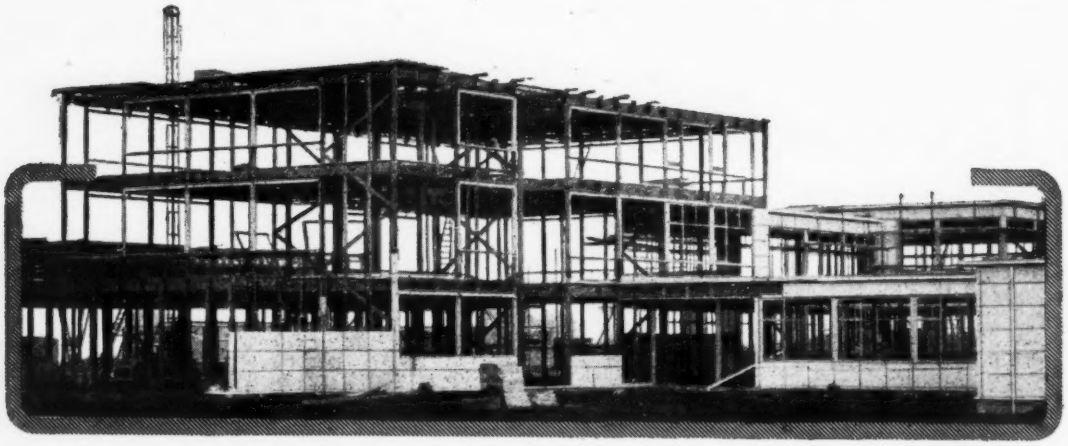
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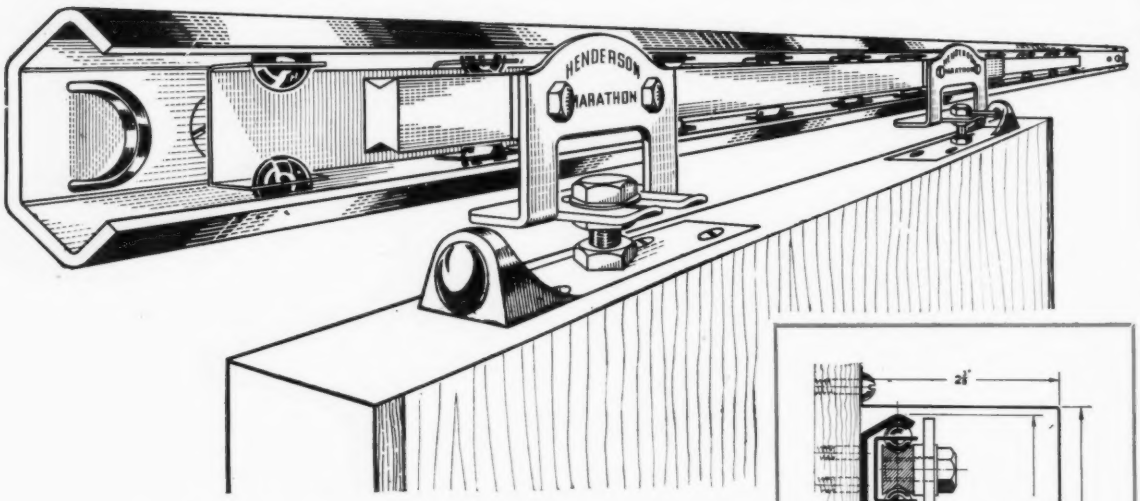
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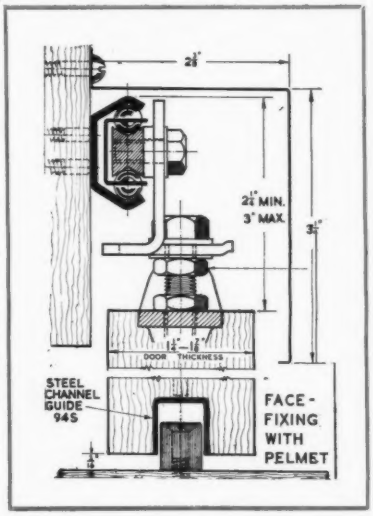
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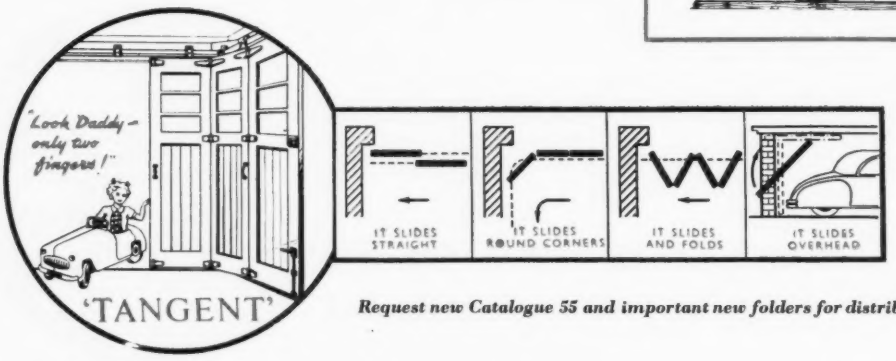
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No. 3157 September 1, 1955 VOL. 122

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STAND AND DELIVER

The last week or so before any exhibition opens is nearly always a mad scurry, never helped much by strikes and general quarrelsomeness. For the last two years and more the electricians have made a hobby of trouble raising, and are still at it—witness the Radio Show There may be some justification for extra money, but last minute strikes are now so much the normal thing that sooner or later people will give up exhibiting their wares. If you have a newspaper strike (electricians again), the advertiser doesn't pay for the non-publication of an advertisement.

*

With an exhibition there is the cost of space, plus stand design and building, adding up to several thousand pounds. I don't suppose many firms worry much about a few pounds extra in wages, but they *won't*, in the long run, stand for exhibitions which open three or four days late. Already there are serious doubts about the value of exhibitions in relation to their quite high cost. The electricians may well be slitting their own throats as well as other people's.

ARCHITECTURE AND SOCIOLOGY

Some people feel, rather more than strongly, that architecture and sociology have sometimes got unduly tangled up with each other. But not, ASTRAGAL feels, in the right quarter. Much of the "serious" Press now takes its architecture quite seriously; much of it seems unaware of architecture's existence. One respects such valuable institutions as, for instance, *The New Statesman* and *The Spectator* for their approach to serious social problems. They also do their duty, more or less, to the arts—the weekly criticism, the odd review of the odd book on architecture . . . but architecture as serious art, architecture as a manifestation of society—No.

*

ASTRAGAL fires this off because it is, surely, in just those sort of weekly journals who, year after year, discuss so ably the problems of a national health service, that a book like the Nuffield Provincial Hospitals achievement should receive the fullest analysis. But so far—no. And, even more surprisingly, neither has *The Times*, which now, at the time of writing, is devoting considerable space instead to such fundamental subjects as a woman's collection of cricket score cards and hunting for Welsh waterfalls.

VULGAR TIMES

ASTRAGAL'S care that places of public jollification should be jolly, as well as public, is well known (if not very successful—that south side of Piccadilly Circus still hasn't half enough lights on it) and readers may imagine his delight at finding the Graduate School at Harvard and our august contemporary *Architectural Forum* applying themselves to the problem of Times Square, New York. Said *Forum*, "The home of the Spectacular is in spectacular need of rejuvenation. . . . Times Square has recently been running out of imagination." Said Dean J. L. Sert, of Harvard, putting the programme to his students, "Times Square is a noisy area . . . try to keep it that way. The colours should be as vulgar as possible."

*

Students, probably somewhat staggered by these admonitions, came up with two schemes, one funnelling Broadway traffic underneath a broad and variegated piazza made by stopping off the side streets that run into Times Square, the other making Broadway traffic part of the spectacular spectacle by whirling it across over the top of the pedestrian areas on a showy Motoramic overpass. Both schemes envisaged getting Times Square advertising into 3-D by means of space frames and mobiles, fought shy of forty-foot models of Miss Monroe, thus showing that there are limits to what even post-grad students will do. ASTRAGAL would like to congratulate all concerned, and to observe (with the shade of 1951 breathing hard down his neck) that even in America one way to go ahead is to go astern.

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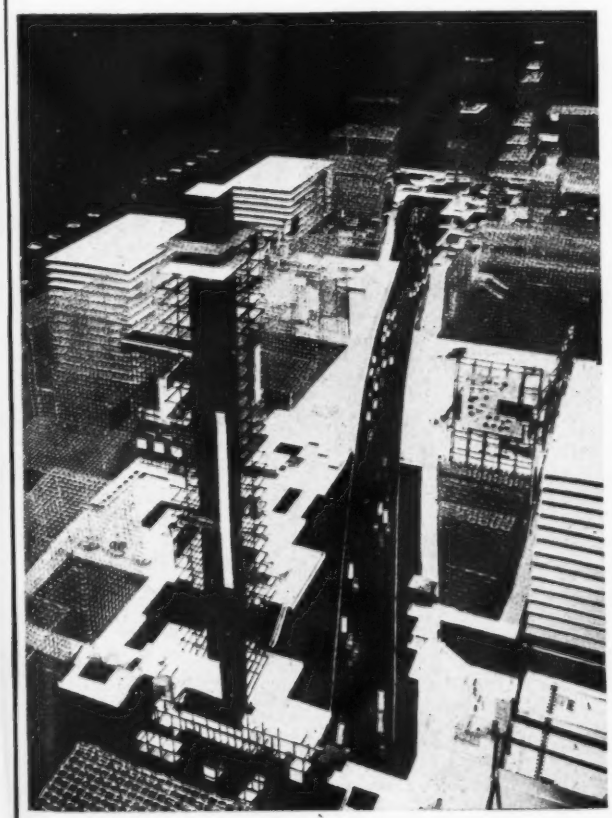
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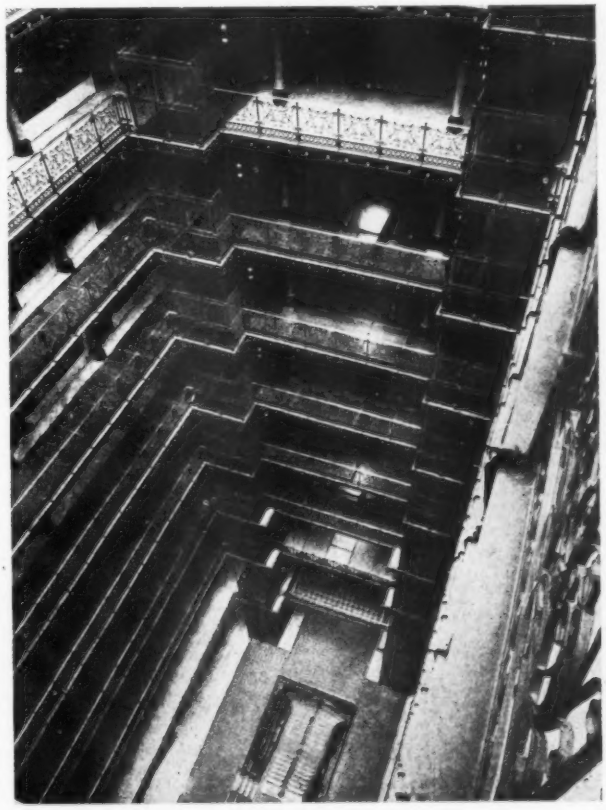
"It seems easier to get big things done in England than in Rio," was Affonso Reidy's summing up to ASTRAGAL *after a day in London studying the LCC's work at Lansbury, and Alton, the Royal Festival Hall, and Powell and Moya's flats at Pimlico. Fresh from the recent IUA Congress, he also found time to visit the Bride of Denmark and our photograph shows him, right, with Percy Johnson-Marshall who recently reported the Congress in the* JOURNAL *for August 11. Continuing with his diary of distinguished guests,* ASTRAGAL *looks forward to October 14, when a long awaited visit from Professor Pier Luigi Nervi is expected. An earlier visit in February was unfortunately cancelled, but the famous engineer is now fully recovered from his illness and will lecture at 6 p.m. in The Friends Meeting House, Euston Road, N.W.1. The lecture will range from the Turin exhibition halls to the UNESCO building in Paris, and no doubt will be well spiced with comments on architect-engineer co-operation. Tickets may be obtained from the Joint Secretary on Structural Concrete, c/o CCA, 52, Grosvenor Gardens, S.W.1.*



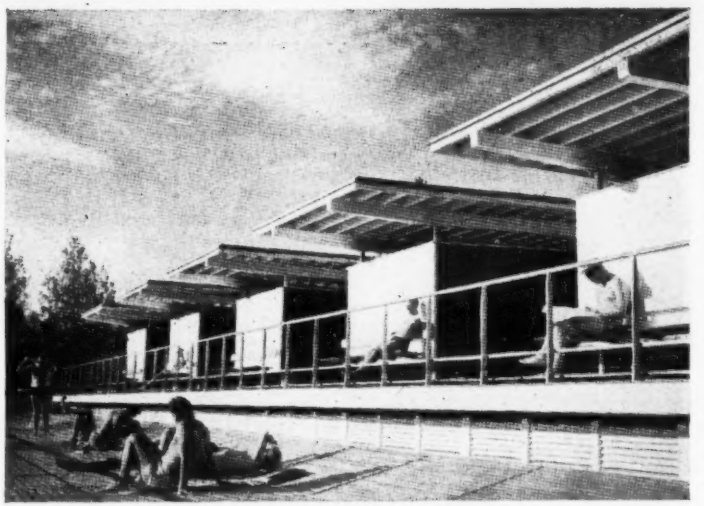
About the overpass scheme, though; one wonders if it could have a glass roadbed so that piazza-promenaders looking up could see tyre-prints in the sky. Reason for wondering is that *Forum* also illustrates the sixty-five-year-old Metropolitan building in Minneapolis, which has its central light well surrounded by glass-floored balconies, so that one could see, as well as hear, footsteps on the floor above. The Metropolitan is clearly a remarkable building; iron-framed and twelve storeys high, it is Baronial without, and all sweetness, reasonableness and

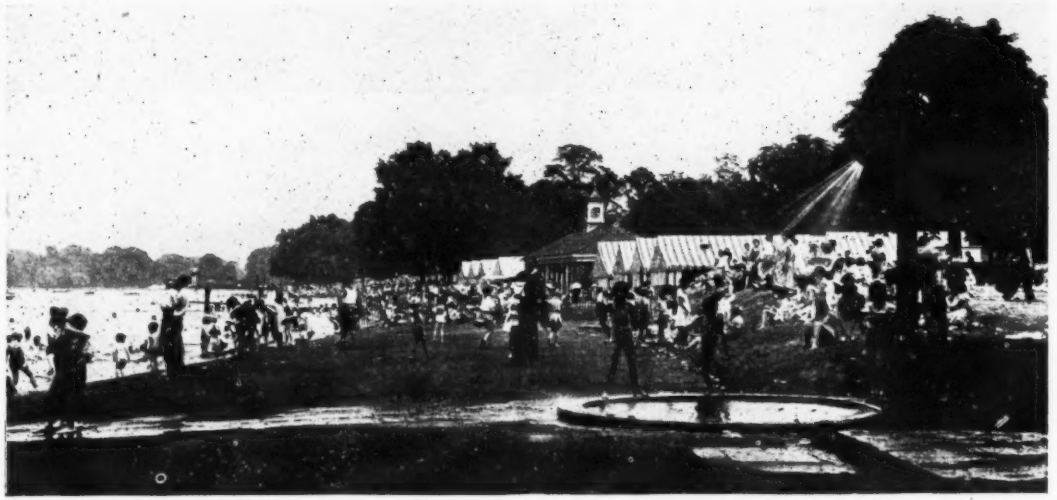
Below left is the Harvard student scheme for an overpass and three level circulation in Times Square. Below right, the skylighted court of the Metropolitan building, Minneapolis, designed by E. Townsend in 1890. See ASTRAGAL's *note on "Vulgar Times."*

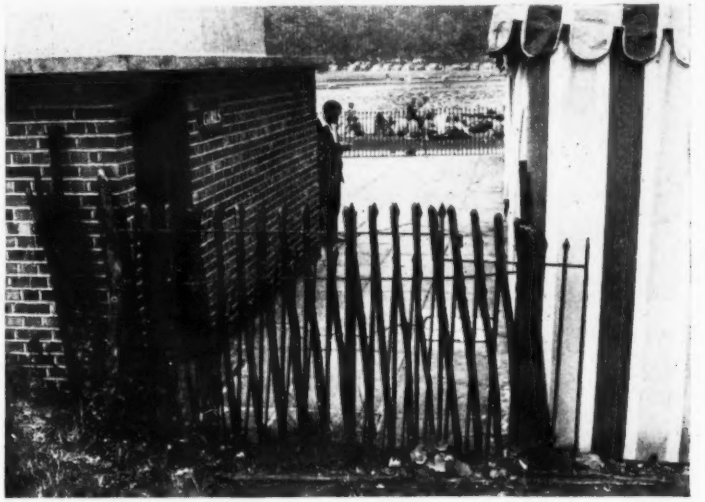












Subtopia in a Royal Park

The opportunities which occur to the over-heated citizens of Zurich and London for a cooling swim are unhappily contrasted in the pictures top, of the Tiefenbrunnen Lido, Zurich, and the Serpentine Lido, above. Hyde Park provides hard dusty paving, worn grass, squalid fencing, poorly detailed showers and diving boards, and dreary changing facilities, all plentifully strewn with the litter of an unthinking public. In Zurich, however, the unlittered grass is well kept, the water's edge neat, the diving board is carefully designed and the men's cloakrooms and sun deck, top right, to take but one detail amongst many, as trim and pretty as a ship. This is further evidence that the evils exposed in "Outrage," the June number of *The Architectural Review*, are not confined to the provinces. Here, in the heart of a Royal Park, is growing evidence of acquiescence to the insidious disease now known as subtopia. Readers anxious to explain the meaning of subtopia to unthinking officials and laymen, will be glad to know that "Outrage," by Ian Nairn, has now been republished by *The Architectural Press*, in the form of a book, price 12s. 6d. (The illustrations of the Tiefenbrunnen Lido are from the June issue of *Werk*. The architect was Josef Schutz, in collaboration with Otto Dürr and W. Roost).

light within. Not only are the floors translucent glass, but the partitions too, and the elevator cars and lift-shafts are as open as possible to afford maximum view of the crystalline interior. Architect, E. Townsend Mix—and ASTRAGAL has never heard of him either.

SCOPE FOR ARCHITECTURAL STUDENTS

ASTRAGAL visited this year's Model Engineer Exhibition and met any number of old friends—motor cars in fretwork; very small steam trains making a great deal of noise; the inevitable radio-controlled model boat being lifted ignominously from the demonstration tank, while the p.a. system added insult to injury by muttering ". . . seems to have lost reverse entirely . . . "; the whine of carbide-tipped drills being forced relentlessly through bricks; the beautiful, silent gull-wing gliders hanging their six-foot spans against the wall, and looking as if they ought to be suspended by a thermal current, rather than two black threads.

*

But why, ASTRAGAL wondered, as he always does at these exhibitions, are so many models spoiled by such awful finishes? Why do so many of them have features (notably wheels and tyres) that are so out of scale that they hurt the eye? And why don't two or three average architecture students send in two or three average third-year architectural models and mop up (*a*) the Student's Cup, and (*b*) the section for scenic and representational models?

*

New this year was an upstairs section called " The Exhibition of Inventions." This is a wonderful farrago of pious hopes, lost causes (perpetual motion and power-for-nothing machines presumably come in both categories); inventions in which nothing remains to be done except to " solve the technical problems involved," perfectly simple devices for watering the lettuces without removing the cloches; two improved fireplaces; an enigmatic box labelled " potato-eyeing machine " (Hm?), and an adjustable square for laying out all the bevels, and scaling all the timber lengths, for a hipped roof, which appears to have been entirely worth the trouble of inventing.

ASTRAGAL

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The Editors

THE ARCHITECTS' REMUNERATION

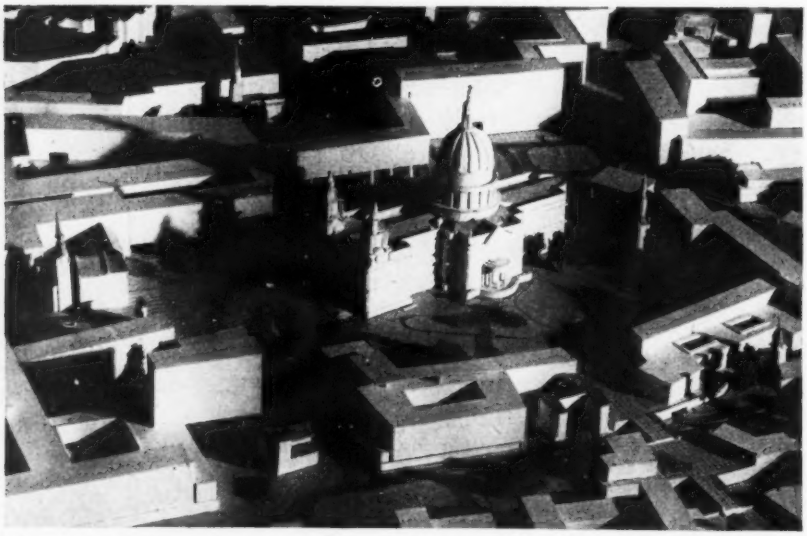
ALL architects will join in wishing success to the new RIBA committee which has been formed, under the chairmanship of Richard Sheppard, to consider the representation of architects in salaried employment. The membership of the committee was given in the JOURNAL of August 18. In general it is representative of the main categories of architect: principals in private practice, chief architects in public offices; assistants in private offices, assistants in public offices, teachers, architects in industrial organizations and architects in Scotland. The terms of reference of this committee allow it to consider the advisability of an extended investigation into the structure of the profession, the profession's total income in relation to the scale of salaries that might be afforded and the grading of architectural appointments. This might well be considered as a most satisfactory outcome from the resolution passed at the RIBA's Annual General Meeting of May 3.

The criticism might be raised that this committee is just one more talking shop, one more attempt to evade the issues, put forward so frankly by the Howitt committee. This can be refuted in two ways. First by the quality of the membership of the committee. Many of the names on the committee are familiar to all the profession as architects who are essentially go-getters. They are men of action, as well as of integrity, who are unlikely to kow-tow to pressure groups, or otherwise allow themselves to be deflected from solving a problem which, though superficially seeming to be only concerned with remuneration, is fundamentally concerned with the status of the architect, his education and his responsibilities.

There is a second way in which the RIBA council can avoid the criticism of procrastination and that is by persuading this committee to publish interim reports on its findings from the investigations which it undertakes. Such reports need not in any way commit the committee in its final findings. They would, however do much to educate the profession, and help to create a sympathetic response when the time comes to publish the committee's findings. The weakness of the profession is its lack of knowledge of itself, and from this arises its lack of self-confidence (such lack of confidence is demonstrated by the recent decision of an RIBA committee that " the time is not yet ripe to restrict the designing of buildings to architects only." A series of frank, informative progress reports from the Sheppard committee could go far in convincing the profession of its value and importance to the nation, always provided that it can stand as a united body, solidly

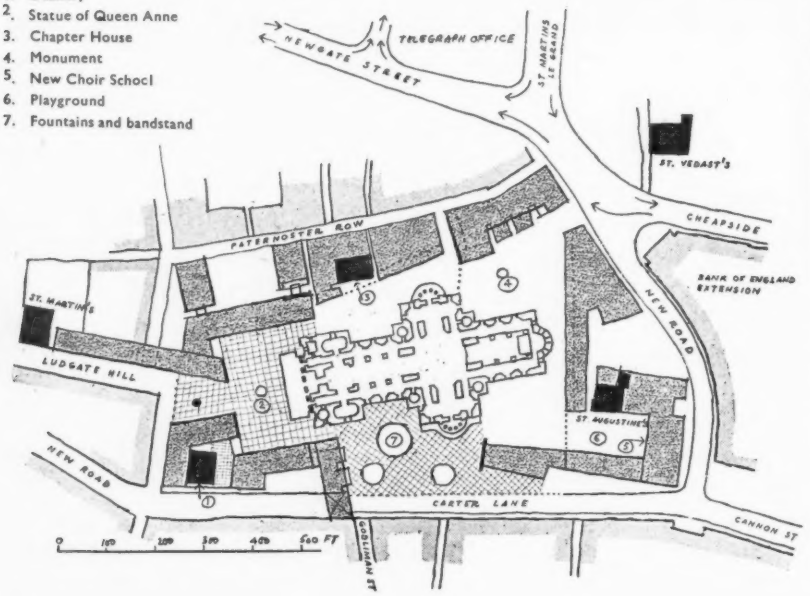
devoted to ensuring that the public gets the best possible architectural services and that, in return, architects and assistant architects get a fair financial return for accepting such responsibilities.

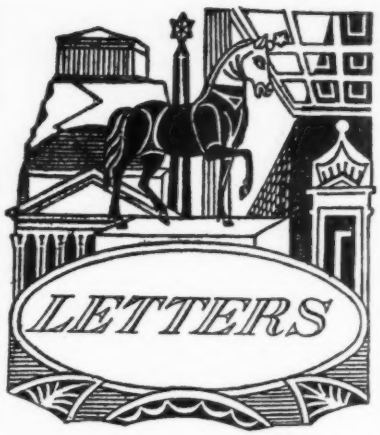
In recent months architects have been talking about strike action and other methods of enforcing scales of remuneration. Such punitive actions—even if feasible—may never be necessary, and if undertaken may well do more harm than good as regards the profession's relations with the general public. Indeed, it may be that some of the problems of remuneration—for instance, of assistants in private practice—can be solved within the profession itself without any fuss at all. It is certain that this well-balanced new committee, under Richard Sheppard, stands a higher chance than any other of achieving successful results amicably.



Above: part of the model showing the proposals of the Polish University College School of Architecture for the treatment of the St. Paul's area. Below: Gordon Cullen's plan (AJ August 18). See letter, right.

KEY:
1. Deanery
2. Statue of Queen Anne
3. Chapter House
4. Monument
5. New Choir School
6. Playground
7. Fountains and bandstand





W. K. Smigielski
Senior Lecturer in charge of the Department of Town Planning, Leeds College of Art

F. Y. Henderson
Director of Forest Products Research
F. M. Lea Director of Building Research

St. Paul's Churchyard: Cullen Best as a Draughtsman

SIR,—There are several inaccuracies and over-simplifications in the interesting article by Mr. Gordon Cullen about the area of St. Paul's in the issue of August 18.

Mr. Cullen condemns the previous schemes produced for this area and puts them all into the category of "Beaux Arts" while he calls his new approach "integrated planning." It is confusing to suggest a new term—although it is fashionable now to invent new terms such as "townscape," "subtopia," etc.—for an approach as old as the Tower of London. He treats St. Paul's as a medieval cathedral in a medieval setting, a typical "organic" or "village" planning. There is nothing wrong with this approach but theoretically speaking this "medieval" treatment could be considered equally as anachronistic today as the "Beaux Arts" method. Is it correct to describe any formal setting for a monumental Baroque building as "Beaux Arts" approach? What of Campidoglio and the Piazza di S. Pietro?

St. Paul's is a Baroque building in medieval surroundings. Surely the right approach ought to be a sort of compromise between the medieval organic planning and the Baroque "vista" method. Mr. Cullen condemns the "vista" method in all the previous schemes yet he applied it frequently himself (Figs. 26, 34 and 38), but in his case it is "integrated" planning.

He is very angry when he notices arcades and open ground floors in other schemes: "Putting the Beaux Arts on *pilotis* doesn't fool anyone." But he used this trick in his scheme lavishly (Figs. 25, 35 and 38), but in this case it is "integrated" planning.

The weak side of his proposal is that he does not tackle the traffic problem even in outline. The diversion of one road will not solve the extremely intensive local traffic having its aim in the precinct itself. And what of the parking for visitors and for national occasions for which provision should be made in the immediate vicinity of the cathedral and which would considerably affect the "visual" aspect of this area!

But, of course, Mr. Cullen is *par excellence* a draughtsman, a very fine draughtsman indeed. His pictorial interpretations of even a bad plan makes the bad plan attractive and when he draws "subtopia" and "wirescapes" one would wish to preserve them.

continued on page 284



In their last two articles the Guest Editors (Costs) discussed the quantity surveyors' contribution (AJ *July* 14 *and* 28) *and in the two before that, the architects' contribution* (AJ *May* 5 *and June* 30) *to the control of building costs. Now it is the builders' turn. Their contribution is shown as a description of how an above-average builder would prepare a tender, and plan and carry out building operations. This week's article deals with estimating and tendering, the next article, which will follow shortly, will describe contract planning and site organization. The illustrations are by Kenneth Browne.*

THE COST OF BUILDING:

THE BUILDER'S CONTROL OF COST

ESTIMATING AND TENDERING

Although this and the following article are in part complementary to those in which the architect's and the quantity surveyor's control of cost were discussed, more space is given here to information about the builder's day-to-day work in his office and on the site. While the architect knows his own problems he does not know enough about the builder's problems. Readers will remember our fictitious Office Building Story (AJ January 27 and February 3, 1955) in which we told of a not-very-efficiently conducted building contract. The ability of the builder (like the other characters) in that story was a slightly caricatured "average." But this week we take readers into the office of a rather different kind of builder, and show the estimating and tendering process efficiently carried out. We take as an example a medium-size builder, capable of building a fair variety of jobs of up to about £250,000 in value, but willing to put up a £3,000 private house; a firm well above the average in the quality of workmanship and efficiency of management by present standards. The procedure described is not the only one to be recommended —nor would it be appropriate for all kinds of builder. We describe it partly as an example of first-class practice but mainly to show the tasks involved—whatever the method of dealing with them.

EXAMPLE

On receipt of the bill of quantities

We take it that some time previously the builder has been asked if he would tender, so that the arrival of the bill is not unexpected. The job is worth about £50,000, and the builder, although busy, would like to get it. He has three weeks in which to tender.

The bill is first examined by the senior estimator so he can get a quick general idea of what kind of a job it is; he then hands it to the assistant who will prepare the estimate. The assistant lists and totals all the p.c. and provisional sums and goes through the preliminaries for those clauses which carry a monetary value, *e.g.*, bond, temporary roads, watching and lighting, attendance on clerk of works, and unusual insurance clauses. With a rough idea of what all this amounts to in money he looks at the rest of the bill to assess a likely total for the whole job. The bill then goes to the buying department.

Buying department

From the bill the buyers make a list of all the materials and their quantities, before getting quotations from the suppliers. They also send out to sub-contractors for quotations, competitive where appropriate. This means that a large part of the bill has to be retyped quickly, for the sub-contractors and suppliers need time to prepare their estimates. Out of the three weeks' tender period, seven to 10 days may be spent getting in estimates. During this time there being only one copy of the bill, the estimator is unable to carry on with his part of the work.

Back to the estimator

He sizes up the quantities of items, such as the total volume of concrete or the total volume of excavation, to get clear in his mind which trades or elements of the job are likely to be most important. Going through the bill he also makes a note of all those clauses where the meaning is not wholly clear, and which must be referred back to the architect or quantity surveyor. Consideration of how the job might be tackled constructionally comes later on. Before this the estimator—

Inspects the drawings

This is a frustrating phase in his work, he has so much to consider—which only the drawings can tell him—and usually so little space, time or quiet in which to think. He must consider:

(*a*) How the job might be tackled, the sequence of operations;

(*b*) How the excavation can best be done, how much by hand, by plant and what kind of plant;

(*c*) Where the concrete mixer can best be sited, how best the placing can be done, by barrows or dumpers;

(*d*) What space there is for huts and storage of materials on site relative to the layout of the building;

(*e*) General problems of hoisting and manoeuvring large components such as roof trusses.

At the same time he has to identify the descriptions in

the bill with the parts of the building to which they refer, so that once back in his office he can remember where items are located. He must also settle the queries which arose in his study of the bill and try to discover more about items covered by prime cost and provisional sums. The answers he gets to his questions may indicate the kind of architectural service he can expect. Meanwhile, another contractor's estimator waits outside, impatient for him to finish. It is not surprising that a few of the larger contractors are investing in cameras rather than spending time making rough tracings of the drawings.

The next job is for the estimator, perhaps with the foreman or contract manager, to—

Visit the site

Without a drawing the estimator must remember from the layout seen in the architect's office just where the building is sited. He inspects generally and looks for suitable places where lorries may drive in, where material may be dumped, and where the mess hut, the foreman's hut and storage sheds may be sited. All these must be considered in relation to access to the construction work itself, *i.e.*, manoeuvring space for excavators, positions for cranes, hoists and concrete mixers and for the dumping of excavation spoil. If there are no architect's trial holes the ground around the site must be examined, the amount of temporary fencing must be assessed and the position of services, *i.e.*, drains, water, electricity and perhaps gas, ascertained. These factors will affect pricing rates; for example, a confined site might prohibit the use of mechanical excavators and thus affect the pricing rates for excavation. Having made notes of all these matters the estimator will then visit the local employment exchange to enquire about labour; and, if the job is in the country, the local merchants, to enquire about the supply of materials.

Method of tackling the job

So far the process has been one of gathering information necessary for working out the estimate. With this information assembled the estimator begins work on the actual pricing; the first stage of which is to consider how construction work might best be tackled. The estimator's problem is analogous to that of the architect who, with his briefing information assembled, begins to sketch out the first possibilities for space planning, except that the estimator has far less time. He consults his colleagues, particularly those concerned with contract planning and contract operations. After some discussion the broad possibilities of site operations become clear, sufficient to guide the detailed pricing of items in the bill.

Pricing

The outputs (*i.e.*, of brickwork or concrete per man hour) will be taken mainly from the estimator's personal records, compiled and revised from past contracts. For the major items each output is considered in relation to the job in hand, and in some cases the estimator will refer to particular contracts, past or current. In cases where no appropriate figure is available, the rate is calculated from the basic factors.

These are complicated and numerous and, since they are not generally known to architects, we set them out below:

Unit rates

The main factors which unit rates comprise are:

(*a*) LABOUR

(*b*) PLANT

(*c*) MATERIALS

(*d*) OVERHEADS

(*e*) PROFIT

They are subdivided as follows:

(*a*) LABOUR

1. Basic wage. 2. Holidays with pay. 3. National Insurance contributions. 4. Non-productive overtime. 5. Time lost through wet weather. 6. Time spent by supervising staff. 7. Tool money. 8. Overtime. 9. Fares and travelling time.

(*b*) PLANT

1. Working time. 2. Standing time—due to bad weather or change of equipment. 3. Fuel and oil. 4. Ropes. 5. Transport to and from site. 6. Drivers' subsistence. 7. Servicing and repairs.

General contractors' labour and plant would account on average for about 25-30 per cent. of the contract sum, assuming that 30-50 per cent. of the contract is nominated work.

(*c*) MATERIALS

Unless there is a standard price list in operation, the costs of materials are obtained by competitive tenders from suppliers (with trade and cash discounts included). For materials where a price maintenance "ring" or a monopoly operates, the list price is taken. Some contractors may have an agreement with certain suppliers to use only their products, in which case a discount is allowed in favour of the builder, which is passed on to the client because it helps to lower the price. In taking a materials price to calculate a unit rate, the estimator must assess the proportion of waste to be allowed. General contractors' materials would account on average for about 12 per cent. of the contract sum, assuming 30-50 per cent. nominated work.

(*d*) OVERHEADS and (*e*) PROFITS

The head office expenses and salaries of managerial and technical staff, which are not chargeable to one particular contract, are determined according to a forecast of annual turnover of the firm; a budget of expenditure for the various sections and departments being prepared to give the overheads percentage for the year. Builders' practice varies in the way overheads are incorporated in the price. Some add it to labour costs only, others add it to labour and plant. Or it may be added to all prices including those of sub-contractors; again the clear profit may be part of the overheads component in each rate or it may be added in with the pricing of "Preliminaries" clauses. Thus, because there is no universal practice, unit prices, even where the totals are comparable, may vary between one builder and another. Overheads and profit would account on average for about 8-10 per cent. of the contract sum. It is probably fair to say that the builder's overheads approximate to the architect's fees, and his net profit to the quantity surveyor's fees. The percentages vary considerably from contract to contract, and so of course do the risks.

These, then, are the various factors which determine a pricing rate. Detailed breakdown costs for walling and excavation taken from particular cases may be shown:—

11-in. CAVITY BRICK WALLING

LABOUR	*pence per foot super*	MATERIALS	*pence per foot super*
Bricklayer	108·91	Bricks	135·46
Labourer	62·79	Cement	11·02
Holidays with pay	9·33	Lime	5·59
National insurance	5·75	Sand	10·85
Trade foreman	5·45	Wall ties	6·00
Mixer driver	3·23	Waste on materials	5·64
Operatives wet time	2·35		174·56
	197·81		
OVERHEADS AND PROFIT		PLANT	
Insurances	2·23	Mechanical mixer	2·02
Other overheads	29·91	Fuel and oil	0·22
Net profit	20·25		2·24
	52·39		
		Total	427·00

EXCAVATE TO REDUCE LEVELS

LABOUR	*pence per yard cube*	PLANT	*pence per yard cube*
Driver	4·950	Mechanical excavator	9·300
Banksman	4·400	Fuel and oil	3·300
Subsistence	1·200	Standing time	2·325
Holidays with pay	0·554	Additional equipment	0·682
National insurance	0·340	Standing time on same	0·170
Supervisory wages	0·323	Plant overheads	2·133
Operatives wet time	0·139	Servicing time	1·000
	11·906		18·900
OVERHEADS AND PROFIT			
Insurances	0·132		
Overheads on labour	1·770		
Net profit	1·635		
	3·537		
Total	34·353		

To go back now to the estimator

He completes and enters on the bill all the unit rates for work which would be done by the company. By this time the sub-contractor and specialist supplier quotations will have been received, compared, checked for compliance with the specification, and filled in. The bill then goes to the comptometer operators for the moneying-out and totalling. This completed, the estimator analyses the total under main headings: P.C. and Provisional sums; Sub-contractors and suppliers; Labour and plant; Materials; Overheads and profit; this gives a general picture of the contract showing where the bulk of the money is going, how much of the work is in the company's hands, how much is architect-nominated, and so on. He can then prepare the budget for preliminaries and site overheads, and assess the time the job is likely to take. At this point he will go back to the senior estimator and together they discuss the contract in some detail before submitting it to the general manager. He, as the top-level man with ultimate responsibility, reviews the estimate and may alter it considerably. If the firm is in need of work or wishes as a matter of policy to work for a particular client, assumptions as to the nature of the ground, the need for a watchman, etc., will be optimistic and the figure may be cut to the bone. If the firm has full order-books, and is not really interested in doing the work, the estimate will be increased. If such is the case, it is not uncommon for the estimate to be worked out very quickly and artificially loaded so that it is unlikely to be competitive. If the architect is known to be slow in giving instructions or supplying drawings, given to changing his mind or appointing clerks of works of low calibre, the figure may be increased.

We might quote here Mr. Woodbine Parish speaking at the Harrogate Architects' Conference in June: "For some architects, my basic prices have to be advanced by as much as 5 per cent. I know I shall not get the details; I know I shall be interfered with . . . and I know perfectly well it will be hell's own delight getting a final certificate. On the other hand, I am delighted to . . . discount my prices by as much as 2½ per cent. for those individuals who really deliver the goods."

Quite naturally, of all the factors that the general manager will consider, the amount of profit he is likely to make will be of paramount importance. Building at management level is fundamentally a commercial occupation and for the particular job in question the general manager will aim at a tender figure just below what the next tenderer is likely to be. If he is to obtain profitable work he must increase his efficiency relative to his capacities by improved technical and management skills. Reductions in cost to the client therefore are likely to come only in the long term as the industry gradually becomes more efficient. For those builders who favour selective tendering, improved technical and management efficiency will receive increased attention since their reputation and flow of orders will depend on it.

COMMENT

Having described the process from receipt of bill to submission of tender it is now possible to consider some parts or aspects of the process in greater detail, as part of the builder's contribution to the reduction of the cost of building.

Time and information

For every contract that the builder is awarded, he tenders for between 10 and 14 others. Thus, the expenses of tendering—salaries and office running costs—are substantial relative to the one executed job. An investigation by the London Builders' Conference showed that tendering costs per £100 of tender varied from 5s. 10d. for tenders of £20,000 or less to 2s. 3d. for tenders over £100,000. Thus,

"*. . . an instinct for the right price.*"



10 competitors for a £100,000 contract would together spend over £1,100 in working out their tenders. To this the expense of similar work by sub-contractors should be added. These costs would, of course, be reflected in builders' overheads and ultimately passed on to the clients. Clearly it is in the interests of all that these costs should be reduced.

The estimators are kept extremely busy "feeding" the company with work. Yet if a bill arrives, as most of them do, without warning, it must be dealt with straight away, because the time allowed (more often two weeks than three) is so short. With so much to do in so little time the builder cannot hope to estimate so realistically or so thoroughly as the importance of the task demands. This tendency is reinforced by his expectation, often justified, that more detailed and careful pricing will be nullified by variations at the commencement of and during the contract.

For these reasons the tendering process is not as efficient as it should be. Much of the needed improvement requires the architect's co-operation, of which three points in particular were discussed in article 6 (The Architect's Contribution: AJ June 30): (*a*) longer tendering period; (*b*) drawings to be sent with bill of quantities; (*c*) selective tendering. To these may be added the need for sending more than one copy of the bill of quantities to the builder. His problems are: first, that the buying and the estimating departments both need to work on the bill simultaneously; second, that parts of the bill have to be re-copied for sending out to sub-contractors. This ideally means more than three copies, for apart from the two which remain in the office and intact there should be several other copies to be dismembered for sending out to people for competitive quotations. Indeed as many as 10 copies has been suggested for fairly large jobs. But with bills flowing into the office at the rate of two or three a week this would submerge the department in paper; it would cost the client a great deal more for printing (25 copies of a 200-page bill of quantities costs about £100) and even so dismemberment of bills might well take as much time as re-copying. Also, many builders would prefer to send out for quotations on their own headed paper. Some quantity surveyors ask contractors which pages of a bill they will need more than one copy of and have the printing done accordingly. This practice should be extended.

The deeper problem here, however, is that of the reform of the bill of quantities, to make it more useful to the builder in this and other respects. The RICS and NFBTE have had the matter under consideration for some three years but so far no conclusion has been published. The difficulties entailed are too complex for a solution to be suggested within the scope of this article, but we refer readers to the annotated bill shown in the article on the Quantity Surveyor's Contribution (AJ July 14, p.53). In any case, two copies of the bill, instead of one, should be sent to the builder.

Pricing

Most builders do not have a regular system of recording the actual cost of all items of work for feed back to the estimating department where they can be converted into unit rates. Too many of the rates used in pricing are taken from standard handbooks and adjusted according



"... *find loopholes in the bill.*"

to the circumstances of the job in question. Indeed, it is not uncommon for some builders to price a bill without any reference to other cost figures or calculation of outputs at all. Long experience gives them what might be called an instinct for the right price—provided the building is a familiar type and the proportions of the major trades are not unusual. Individual pricing rates may be higher or lower than the actual costs, but combined they add up to a total that experience has shown to be competitive and capable of yielding a profit. This method of estimating can deal with several bills, while the process described earlier deals with only one. It is not surprising then that tenders vary so widely in some cases. Some builders adjust their prices for reasons which have nothing to do with actual costs. For example, excavation may be priced high to boost the value of early certificates, later operations being priced low to compensate. Or a builder may deliberately fix his tender figure at an uneconomic level in a determined effort to get the job, hoping to recoup, with as many claims as he can find loopholes for in the bill, the contract, or the architect's instructions. Indeed, some builders are known to have "claims departments" for this purpose. Clearly this is a thoroughly unhealthy state of affairs.

There is need for greater use of cost feed-back systems: firstly, to enable comparisons of particular operations on different jobs as a guide to efficiency: secondly, to ensure that pricing rates remain realistic. Cost feed-back systems could be partly derived from the work of the bonusing surveyor, for he measures the output rates (so many bricks, or so many yards cube of concrete, etc., per man hour). These, plus plant performance figures, material costs and overheads, are the basic information from which a pricing rate is built up.

We mentioned that the unit rates entered in priced bills may not be directly comparable because overheads and profit are included in different ways by different builders. It is unfortunate that there is no standard practice followed by all. Partly because architects may draw misleading conclusions from comparisons of different bills and partly because it complicates the preparation of cost analyses. A standard system should be agreed by the various interested bodies and adhered to by all builders and sub-contractors.

Materials prices

It should be possible, perhaps as part of a nationally organized information service, for builders to maintain

materials' price records, to reduce the number of separate quotations obtained for each tender. The records would have to show price variations according to region and could not, of course, be so precise as actual quotations. But since materials bought by the general contractor account on average for less than 15 per cent. of the contract sum, these differences would have a negligible effect on the ultimate total. While prices are unstable, the fluctuations clause in the RIBA contract must remain and separate quotations be obtained to substantiate basic prices. Such a price record system will perhaps have to await more stable prices.

Simplified or unfamiliar construction

Architects are often disappointed to find that their efforts on the drawing board to simplify or standardize construction are not reflected in the tender prices. This may be because such efforts are not made clear on the drawings or in the bill, or because the construction is unfamiliar. Confronted by construction of a kind which his company has not built before, the estimator is more than likely to price high. Until the construction has been built at least once, no one can reliably foretell what is the most economical way of doing it, what the labour content or the plant costs will be. Moreover, the first trials on the site are not likely to reveal the true economy of the method, partly because more than one way of tackling it may have to be tried before the best balance of plant and labour content are found, and partly because the men will be going through unaccustomed operations.

While the presence of these difficulties and risks cannot be contested, too many builders are unwilling to study the details and make careful assessments of unfamiliar construction designed by responsible and competent architects. Perhaps the sellers' market now in being encourages this retrogressive approach, which delays the testing of new ideas that might yield cost savings. If lack of information is the reason for caution, then there is need for publication of detailed cost and output records of each trial of a new idea, like those published by the Building Research Station.

With these difficulties in mind the estimator will turn whenever possible for guidance to the nearest equivalent constructional methods of which he has knowledge or records. From these he can evolve a likely sequence of operations and so arrive at figures for plant and labour costs to build up his unit price. The cost of materials is, of course, easy to assess accurately. But his price must make allowance for the unfamiliarity and may be high. But standardization, for example, the co-ordination of room and partition unit sizes, or the reduction to a minimum of the number of different floor finishes, is a straightforward matter. If it is brought to the estimator's attention on the drawings and in the bill he can make appropriate allowance in the pricing.

Unconventional construction design which aims specifically at more speedy work on site or lower costs also puts the architect in a difficult position. He is working very much in the dark for he cannot know in advance the particular skills, resources and plant of the builder who will put up the building. Nor are the only cost records available to him—priced bills—very informative as to what is cheap and what is expensive in constructional detail. In cases where a completely novel form of construction for the main elements is to be attempted it would be risky indeed for both technical and cost reasons not to consult the builder at an early stage. This raises the contractual procedure question, which properly belongs to a separate article. In less ambitious cases, where only part of the building could be described as unfamiliar construction, the architect should provide the estimator with all the relevant data he has collected in the investigation of it, including an account of the methods of assembly he has envisaged. This could be in the form of descriptive notes in the bill or in specially prepared drawings.

Other factors affecting price: quality of workmanship

This problem was raised by Sir Thomas Bennett at the

" . . . the men will be going through unaccustomed operations."



recent British Architects' Conference at Harrogate. Specifications commonly state that " workmanship shall be of the best "; yet these words are differently interpreted by contractors and architects for different types of buildings. Compare, for example, banks and local authority houses. Quality of workmanship has a definite bearing on price, so that the builder must decide just what the words in the specification mean in a particular case—he cannot take them literally. With unknown architects or clerks of works, his interpretation must be something of a gamble. The quality of materials and finishes specified in some guide, although some architects expect superb quality work with inadequate materials. For example, two coats of paintwork will not allow as good a finish as three coats. There should be some means, then, whereby the standard of quality envisaged by the architect can be indicated with greater precision than at present. With selective tendering it might be possible for both architect and builder to visit a building of the quality required. Readers' suggestions for methods of indicating quality more precisely will be welcomed.

In our next article the story will be continued with an account of how contract operations are planned and carried out by the above-average builder.

Letters—*continued from page* 278

His delightful perspective sketch of the piazza in front of St. Paul's (Fig. 26) defies his theory of enclosure and suggests a much wider area than proposed in his layout.

Mr. Cullen is less convincing in the rôle of a prophet of a new approach to town planning and is at his best in the rôle of a draughtsman, in particular when he interprets somebody else's plans.

W. KONRAD SMIGIELSKI.

Leeds.

[We regret that Mr. Smigielski would appear to have misunderstood much of Gordon Cullen's article. Every view is a vista of some sort, one of the points Mr. Cullen tried to make was that by linking views together in a time sequence (as the pedestrian would observe) we are able to unlock the door to a kind of urban drama which the fixed viewpoint system (see the Polish School's scheme, above) cannot achieve. Gordon Cullen objected—not angrily—to the Polish School's scheme mainly on the grounds that it opened up St. Paul's too much—which leads to monotony. As regards motor traffic, Cullen's argument was that St. Paul's churchyard should not be used as part of the solution to a traffic problem. Other buildings, outside the precinct, must suffer to answer that, and must provide car-parking space too. As regards parking space within the precinct for local traffic, considerable areas have been left on the perimeter, as can be seen in the plan on page 278. EDITORS.]

Official View On Wear Tests

SIR,—In his letter published in your issue of July 28, Mr. A. D. C. Smith refers to a statement on wear-tests on flooring materials in the Report of the Director of Building Research for 1954, and draws conclusions which call for comment.

The statement in question that " reliable methods of test have yet to be devised " related solely to tests on materials other than timber floorings, for the work of the Building Research Station is concerned only with these other materials.

The position is more fully explained on pages 5 and 18 of the report and briefly is as follows. A particular form of wear-test will often classify different materials of one type in their proper order of wear resistance and the form of test adopted by the Forest Products Research Laboratory for timber floorings gives results in good agreement with the results of practical trials. Moreover, advice based on these tests is widely accepted by the flooring manufacturers themselves.

But no form of test so far devised will satisfactorily grade the wear-resistance of materials of widely different types, *e.g.*, linoleum and timber, concrete and thermoplastic tiles: nor do different forms of test give comparable results between such materials. For these reasons, which have long been known, the many wear-tests made at the Building Research Station on a range of widely different materials have taken the form of practical trials and no attempt has been made, for that purpose, to assess wear-resistance by means of wear-testing machines. Nevertheless, as noted on page 18 of the report for 1954, investigations on methods of wear-testing are proceeding. In addition to a study of existing test methods in co-operation with a number of continental laboratories, an investigation of the forces exerted by the foot on the floor is in hand at the Station. From this work it is hoped that a wear-testing machine that will be applicable to a range of materials of different types may be designed.

F. Y. HENDERSON.
F. M. LEA

Watford.

NEWS

CONFERENCE

Regional Planning and Development

Under the presidency of Vijaya Lakshmi Pandit, the High Commissioner for India in the U.K., and sister of Pandit Nehru, an international conference on regional planning and development will be held from Thursday, September 29 to Sunday, October 2, at Bedford College, Regents Park.

The purpose of the conference is to provide those interested in regional planning and development with an opportunity of meeting each other; to review several regional planning and development projects and study methods of approach, organization and team work; and, finally, to consider the establishment of a permanent centre for research and documentation, and/or an association to further these aims.

The Conference will examine four major regional projects. In each case the main speaker will represent the authority in charge of the scheme. He will be assisted by a panel of experts in related subjects, who will open the discussion. The programme is as follows:

Thursday, September 29. Morning: opening address by the Conference President, a report by Conference Arrangements Committee, and the appointment of Standing Committees.

Afternoon: *The Tennessee Valley Authority in perspective*: opening lecture by Dr. Edward Ackerman of Resources of the Future, Inc., followed by a panel discussion. Chairman: Sir William G. Holford.

Evening: The Conference will divide into regional groups and will discuss the application of the T.V.A. experience to their respective regions. Group rapporteurs will report to the Conference during Session 9.

Friday, September 30. Morning: *The Indian Community Development Project*: opening lecture by a representative of the Project Administration, followed by panel discussion.

Afternoon: discussion by regional groups.

Saturday, October 1. Morning: *The Volta River Project, Gold Coast, West Africa*: opening lecture by Mr. John G. Liverman, representative of the Volta River Project Preparatory Commission, followed by panel discussion.

Afternoon: *The Northern Provinces of Norway*: opening lecture by Mr. Thor Skrindo, Representative of the Norwegian Economic Development Administration, followed by panel discussion.

This is followed by the consideration of the proposal for a Centre and/or Association for Regional Planning and Development.

Sunday, October 2. Morning: reports from regional groups and standing committees; consideration of resolutions and appointment of working committees; closing address.

Accommodation and full board can be obtained at Bedford College for £4 4s. 0d. This has been arranged to facilitate personal contacts between participants. The registration fee is £3 0s. 0d. Further information available from Norman J. Hart, 45, Northcote Avenue, W.5. The conference organizers are: Professor R. J. Gardner-Medwin (*Chairman*), F. J. C. Amos, Professor J. S. Allen, W. H. Beckett, S. Brassey-Edwards, Leslie Ginsburg (*Hon. Secretary*), E. C. Gordon England, Norman J. Hart, P. Johnson-Marshall, Dr. O. H. Koenigsberger, Arthur G. Ling, Max Lock, R. M. Rookwood, Professor John Phillips, and Dr. G. P. Wibberley.

VENEZUELA

IX Pan-American Congress

The ninth Pan-American Congress of Architects will be held in Caracas, Venezuela, from September 19-28. The principal objective of the Congress will be to continue the work of previous congresses in the interchange of ideas and information regarding the achievements of the participating countries on the general theme of " The social function of the architect: planning and the architect." The principal theme is to be the " integral planning of living areas " and there are sub-themes on housing, schools, hospitals and recreation. There will be exhibitions of architectural work by the participating countries.

DIARY

Piet Mondriaan. Talk by Dr. J. L. Martin on the current exhibition at the Whitechapel Art Gallery. On the BBC Third Programme. 7.35 p.m. SEPTEMBER 1

Between Two Decades: Post-War Planning and Architecture. Series of seven talks. First talk by H. Myles Wright. On the BBC Third Programme. 10 p.m. SEPTEMBER 1

Development of the English Town and *Planned Town.* Two official films. At the BC, 26, Store Street, W.C.1. 12.45 p.m. SEPTEMBER 7

COMMUNITY HALL

ROE GREEN, HATFIELD, HERTS

designed by LIONEL BRETT and KENNETH BOYD

assistant architects JOHN GILLESPIE and NEWTON WATSON

quantity surveyors, DAVIS, BELFIELD and EVEREST



Sculpture group. Viewpoint 2.

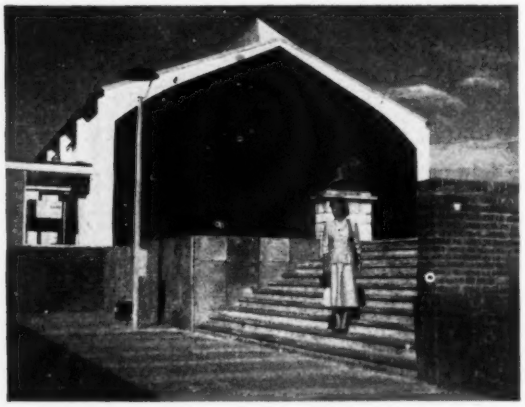
Roe Green neighbourhood centre at present consists of shops, garages and the meeting hall illustrated in this article. The hall seats 300 and has a stage at the east end with a chapel at the west. Cloakrooms, committee rooms, kitchen and servery area complete the accommodation and are housed in single-storey flat-roofed blocks, set at right angles to the main axis of the hall. The hall and proposed public house, which will complete the neighbourhood centre, will enclose a playground for the children in the neighbourhood. General contractors, C. Miskin & Sons Ltd.; Sub-contractors, page 306.

View from south. Viewpoint 1.





Key plan showing photographic viewpoints.



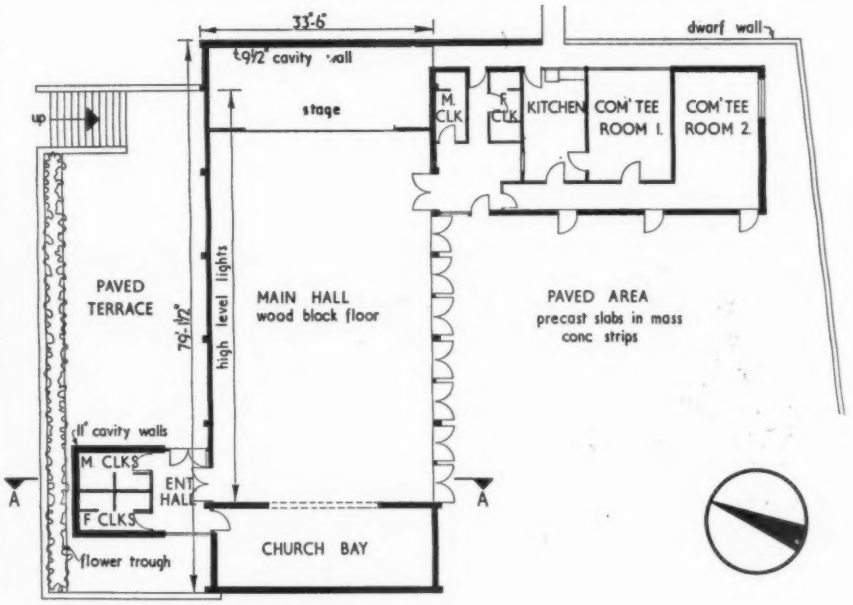
COMMUNITY HALL AT HATFIELD

Left, viewpoint 3: the west end of the hall and the steps leading down to the group of five shops, which are at right angles to Bishops Rise. The sculpture, seen against the dark green gable end of the hall, is a copy of the classical Greek composition, "The Wrestlers," and was obtained second-hand by the architects. Below, view from the north, viewpoint 4, with the load-bearing brickwork to the gable end and return panel on the left defining the stage end of the hall. The exposed vertical members of the concrete portal frame enclose rendered concrete block panels with painted softwood framed clerestory windows above. The opening lights are fitted in alternate frames being metal-framed horizontal centre-pivot hung. The hall roof is covered with a ribbed aluminium decking of Swiss origin, which is made up of bands 2 ft. 3 in. wide, running continuously along the length of the roof (maximum reach for this material is 90 ft.) Each band is overlapped by the next to the extent of 3 in. and offers a weather face of 2 ft. in depth between horizontal joints. The decking is clipped on to shaped aluminium retaining strips which are nailed to the top edge of the s.w. purlins, the strips having upstanding dovetail tongues corresponding to the ribs of the decking. There are no nail or bolt holes in either the direct fixing or lapping of the decking strips. The retaining wall and gable wall to the hall are in woodside multi-facings and the walls to the low entrance and cloakroom block, to the right, are in mild stock facings. The paving, in the right foreground defines the car parking area. Colour: rainwater goods, black. Eaves fascia and portal frame, white. Window and door frames, white. Rendered panels between portal frames, light grey. The pyramidal roof light will appear as a Working Detail in a future edition of the JOURNAL.



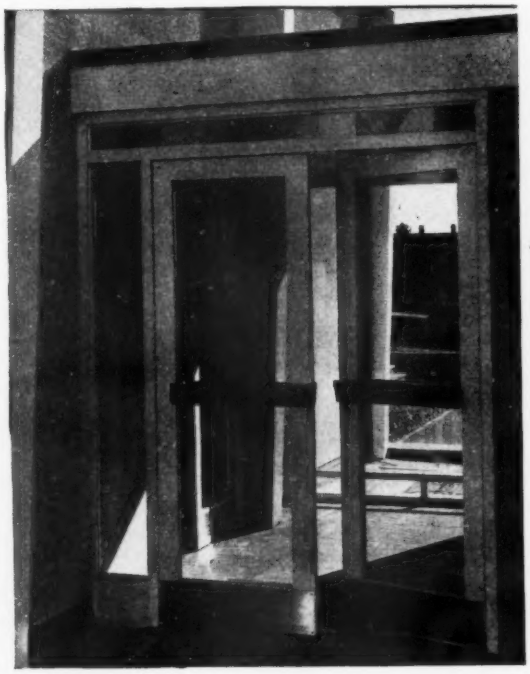


Right: a view from the main entrance lobby through the large polished plate panel overlooking the shops which form an integral part of the neighbourhood centre. Bottom left: double swing doors, viewpoint 5, with ¼-in. polished plate and wired glass to main entrance lobby. The push bars are polished and moulded hardwood and occur on both faces of the doors. The kicking plates are in alloy. Softwood frames and fascia to block are painted white. The p.c. paving slabs forming the terrace leading to the entrance are continued into the lobby. Bottom right: entrance lobby and servery area leading to kitchen, committee rooms and hall. The painted top-hung inward opening hatch on the left reveals the kitchen. Hardwood strip panels occur above and below the hatch. The corridor ahead has three doors to the right leading on to the paved court, and two doors to the left leading to the kitchen, and a small committee room. The door at the end of the corridor leads to the main committee room. An open slot above the corridor

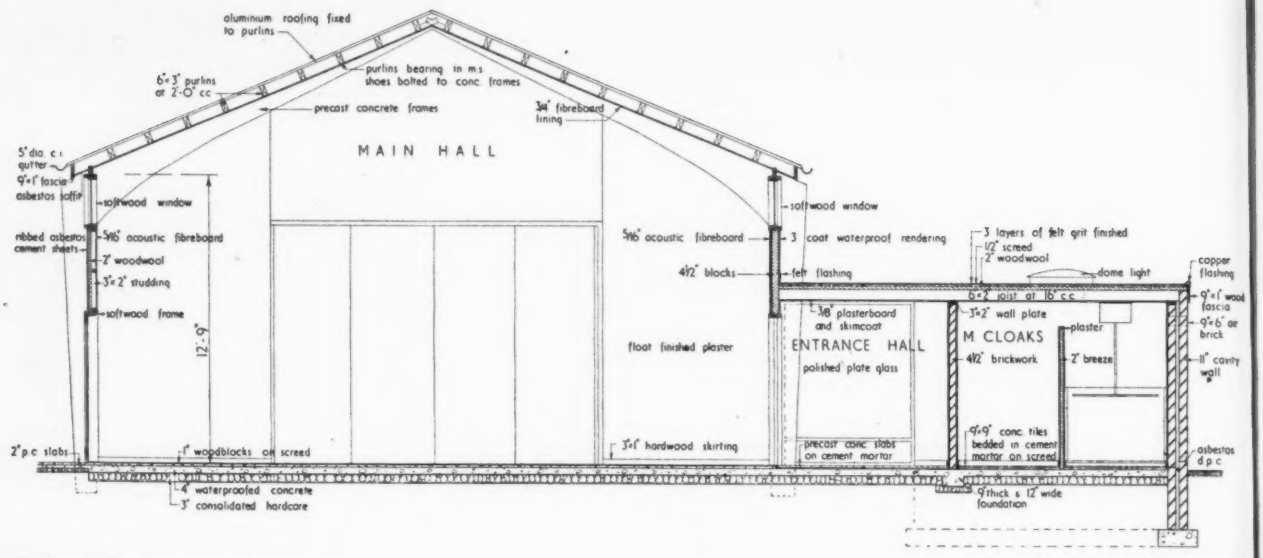


Ground floor plan [Scale : $\frac{1}{24}$" = 1' 0"]

and internal doors leading from the corridor provide permanent ventilation. Floor finish to the corridor, cloakrooms and kitchen is in grey concrete tile, whilst the finish to the committee rooms is in a red magnesite.







Section A-A [Scale : ⅛" = 1' 0"]



A general view from the stage end of the hall. The floor is wood block laid in herringbone pattern and wax polished. The horizontal strip above the row of double doors on the left is in $\frac{5}{16}$-in. fibreboard nailed to 3-in. by 2-in. s.w. studding. The dark panels behind the chairs on the right are $\frac{5}{8}$-in. plastered breeze blocks with a strip of $\frac{5}{16}$-in. fibreboard above nailed to battens. The flanking walls to the chancel are in plastered brickwork with the panel above the opening faced in polished hardwood panelling. The panels, approximately 10 in. wide, are set at a slight angle to one another. The ceiling is formed with $\frac{3}{4}$-in. fibreboard sheet secured direct to s.w. purlins above. Colour: the general colour scheme comprises panels and strips of varying tones of grey with the main colour emphasis on the red ceiling (Munsell ref. 7.5R 4/6).

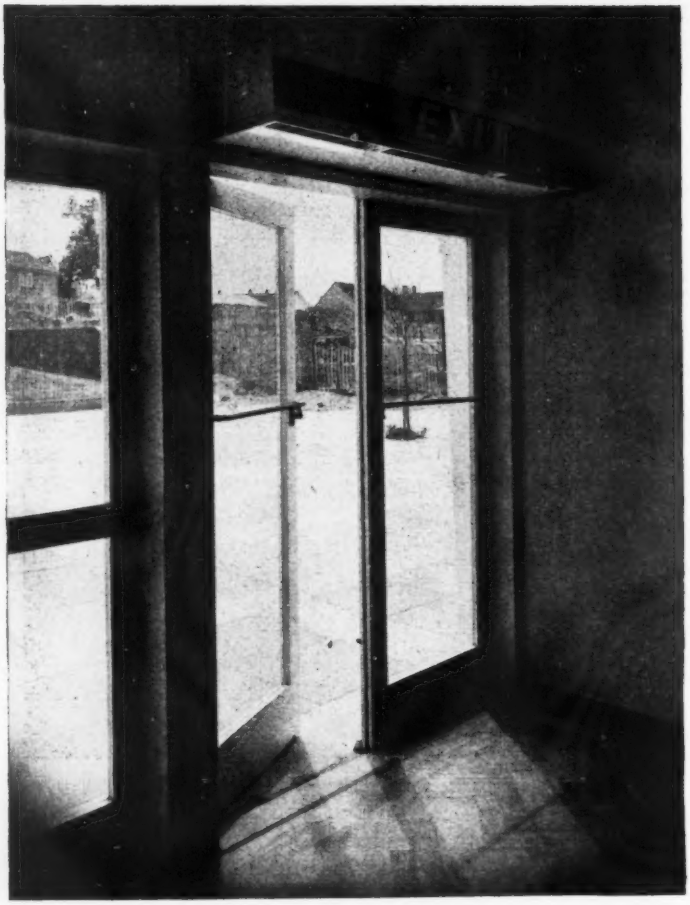




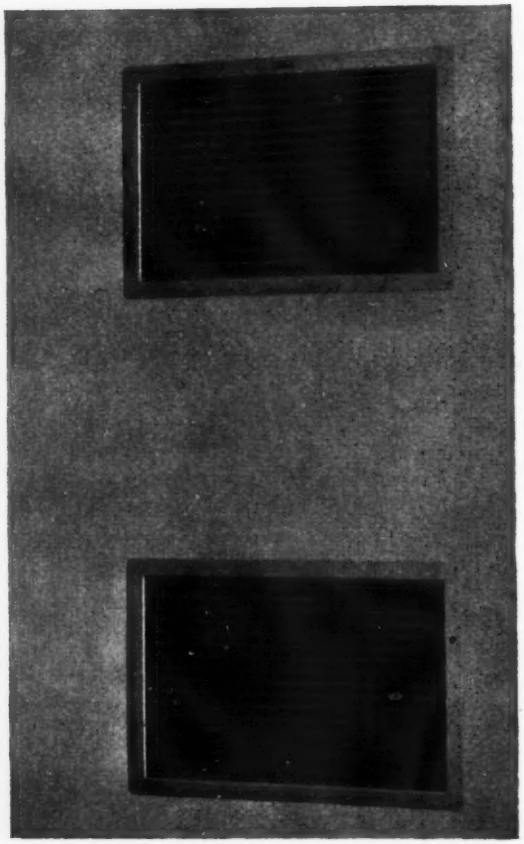
COMMUNITY HALL AT HATFIELD



Above left: the stage is surrounded with a painted softwood frame with t. & g. boarding painted dark grey below stage floor level. The walling surrounding the stage opening is plastered brickwork. The pair of grilles to the right are the intake and extract points to a vertical heater cabinet providing forced warm air heating to the hall. There is a cabinet to the left of the stage and a horizontal cabinet in the chancel, these being the only units required to heat the hall. The linen curtain has a repeat design in lime and white on a black ground. Above right: a detail view of the chancel with the beam of light on the lectern coming through the pyramidal roof light above the altar. Left: three of the four sliding panel leaves viewed from the chapel. Each leaf is in solid timber and is approximately 11 ft. high and 4 ft. wide, being hung from an overhead track and bearing on a patent rubber floor guide. The doors are faced with a polished h.w. veneer on the chapel side and polished h.w. strip on the hall side.







Above left: one of the two emergency exit doors leading from the hall to the outside paved area. There are in all seven pairs of double doors leading on to this area from the hall, all glazed with ¼-in. plate georgian wired glass. The doors are set in painted softwood frames with polished hardwood push bars to doors other than emergency exit doors. The wood block floor, laid in herringbone pattern, is wax polished. Above: detail of thermostat located back-stage, which serves the hall and controls the fans within the heater cabinets thus regulating the heat output. Below left: a detail of the vertical heater cabinet grilles set flush to the wall surface on either side of the stage opening.

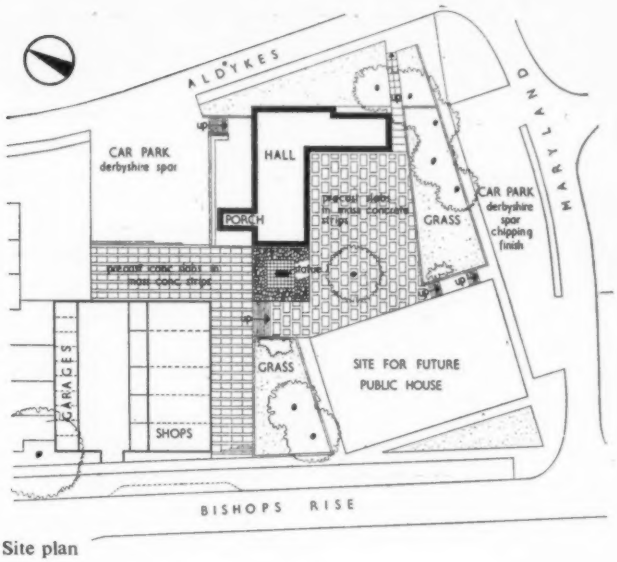
COMMUNITY HALL AT HATFIELD

CLIENT'S BRIEF: his stated requirements

A general-purpose hall to seat 300, forming part of a neighbourhood centre comprising shops, garages and a public house. The hall, in addition to housing a stage, would be used for regular religious services, and a chapel, able to be isolated from the hall, was to be incorporated. A kitchen, lavatories and two committee rooms to be included in the scheme. Total cost not to to exceed £10,000.

SITE: topography, surroundings, access, planting

Site slopes steeply from south to north. An island site, enclosed by low-rental, privately-built housing. Road approaches on three sides with main road to town centre along western boundary. No existing planting. Large paved area adjacent to hall to cater for outdoor activities, and provide the children in the neighbourhood with a playground.



Site plan

PLAN: general appreciation

Aspect and contours dictated east/west axis for hall. Committee rooms, kitchen and official's lavatories located on a north/south axis to the east end of the hall. Main entrance at west end of hall with direct access to chapel, hall and public lavatories.

MAIN CONSTRUCTION: general appreciation

Reinforced-concrete portal frame at 12-ft. centres, supporting 6-in. × 3-in. softwood purlins at 2-ft. centres, with corrugated-aluminium decking fixed direct to purlins. Non-load-bearing cavity wall at west end of hall, rendered concrete block panels and stud-frame panelling, with clerestory glazing above, interspersed between bays. Load-bearing cavity brickwork to east end of hall. Loads transmitted to pad foundations beneath portal columns and strip foundations beneath walling.

MAIN CONSTRUCTION

Load bearing element	*Location*	*Beam spans*	*Column grid*
Cavity brickwork	Main entrance and lavatories, kitchen and committee rooms		
Portal frame	Hall	32 ft.	12 ft.

Foundation type	*Location*	*Sub-soil*	*Depth*
Pad	Portal frame	Gravel	1 ft. 6 in. min. to top of pad
Strip	Elsewhere		1 ft. 6 in. min. to top of strip

Outer wall type	*Location*	*Materials*	*Finish*
9½-in. cavity wall	Hall	4½-in. inner skin of common brick, plastered. 2½-in. cavity. 3-in. concrete block outer skin, rendered. At east end of hall, compositions of wall reversed with facing brick as exterior skin	Painted or fairface
11-in. cavity wall	Lavatories, committee rooms and kitchen	4½-in. inner skin of common brick, plastered. 2-in. cavity. 4½-in. outer skin of facing brick	Fairface
4½-in. concrete blocks	Hall and external corridor wall to committee rooms	4½-in. concrete blocks rendered externally, plastered internally	Painted
Composite panel	Hall above doors on south side	3-in. by 2-in. softwood studding with ¼-in. fibreboard inner lining, 2-in. woodwool and ribbed asbestos board outer lining	Painted

Roof type	*Location*	*Material*	*Finish*
Joists or purlins	Throughout	Softwood	Corrugated aluminium decking to hall. 2-in. woodwool, ½-in. screed and 3 layers bituminous felt with mineralized grit finish to all flat roofs

Floor structure type	*Location*	*Material*	*Finish*
Solid	Generally	Minimum 3-in. hardcore. 4-in. site concrete (water-proofed). Cement and sand screed of varying thickness	Hall, 1-in. wood block, laid herringbone pattern. Entrance, 2-in. precast paving slabs. Lavatories and kitchen and corridor, 9-in. by 9-in. grey concrete tiles. Committee rooms, magnesite

Internal wall type	*Location*	*Material*	*Finish*
Non-loadbearing partitioning	Committee room and lavatory area	Breeze block and 4½-in. common brick	Plastered both sides

Ceiling types	*Location*	*Material*	*Finish*
Direct fixing	Hall	¾-in. fibreboard	Emulsion paint
Direct fixing	Elsewhere	⅜-in. plasterboard, scrim-jointed, skim-coated	Lime wash

ARTIFICIAL LIGHTING

Source and fitting type	*Location*	*Quality*	*Comments*
Tungsten filament, 300W ceiling pendants	Hall	Dispersive	General illumination
Tungsten filament, 150W wall boost	Chapel	Spotlight	Directional
Tungsten filament, 75W direct fixing to ceiling	Elsewhere	Direct	General purpose

Wiring and switching types

Toughened rubber cable in screwed conduit concealed in walls and above ceiling. Flush pattern switches set in CI boxes

Power supply type

Lighting and power on a 13-amp. ring main with all points using a standard socket outlet

NATURAL LIGHTING

Wall glazing

Horizontal centre pivot hung clerestory windows to hall. Side hung casements to kitchen and committee rooms

Roof glazing	*Location*
Circular dome roof lights	Lavatories
Special pyramidal roof light	Chapel

THERMAL INSULATION

Type	*Location*	*U. value*
Structure plus ¾-in. fibreboard and aluminium decking	Hall roof	Not available
Structure plus plasterboard 2-in. woodwool and screed	Roofs elsewhere	0·15 (approximately)
9½-in. cavity walling	Hall	0·25 (approximately)
11-in. cavity walling	Hall and elsewhere	0·30 (approximately)

HEATING AND VENTILATION: artificial and natural

Heat exchanger type	*Location*	*Criteria temp.*	*Air changes*	*Comments*
Heater cabinet providing forced warm air with the output limited by a thermostatically controlled fan	Two vertical cabinets on either side of stage. One horizontal cabinet in chapel	25° F. rise	One per hour	Individually-controlled gas radiators to committee rooms and corridor

Boiler type and capacity	*Heat load*	*Reason for choice*
Ideal gas fired	GBBB.5	Labour free

Water heater type	*Location*	*Fuel type*	*Comments*
Gas, instantaneous	Adjacent to kitchen sink	Gas	No other fittings have hot water supply

Pipes and jointing types

Galvanized iron tube, screw-jointed, used generally

Cold water storage	*Location*	*Materials*	*Capacity*
Tank	Above stage	Galvanized iron	80 gallons

SPECIAL ACOUSTICAL TREATMENT

Sound absorption material	*Location*	*Absorption coefficient*
¾-in. and ½-in. fibreboard	Hall ceiling and portion of walls	Approximately 0·3

Sound insulation

Corridor as baffle between hall and kitchen. Solid hardwood sliding doors as baffle between hall and chapel

SOIL WASTE

Type of system	*Location*	*Materials*
Direct from fittings to manhole	Lavatories and kitchen	4-in. s.g.p

Drain types	*Materials*
Soil and surface water	4-in. s.g.p

Rainwater disposal type	*Location*
Sump and gutters to c.i.rwp's	Sump to roof of main entrance, gutters elsewhere

FIRE

Access for firefighting	*Means of escape*
Access to all sides of building	Three hall exits, one stage exit

COLOUR

Paint types	*Where used*	*Comments*
Chlorinated rubber	External west gable end	Munsell colours used. Grey and white form main background, with a dark sea-green panel treatment to west gable end. Ceiling to hall, bright red
Emulsion	Walls generally and ceiling to hall	
Gloss	External woodwork generally	
Semi-gloss	Internal woodwork	
Lime wash	Ceilings generally	

TIME SCHEDULE

Work commenced	*Work completed*	*Type of contract*
18th June 1954	30th April 1955	Lump sum

COST ANALYSIS

Total ground floor area of superstructure	3,704 ft.s.
Tender date	17.5.54
Tender cost of superstructure	£8,409
Tender cost of foundations	£721
Gross total cost	£9,130
Cost per ft.s. of floor area	49s. 3½d.
Cost per ft. cub.	2s. 8½d.

Element	*Total cost in pounds*	*Cost in pence per ft.s.*
Preliminaries and insurance	563	36·48
Contingencies	432	27·99
Work below ground floor level	642	41·60
External walls and facings	748	48·47
Internal load bearing partitions	46	2·98
Internal partitions	138	8·94
Frame	874	56·63
Roof	1,366	88·51
Roof lights	152	9·85
Floor finishes	723	46·85
Windows and doors (external)	466	30·19
Doors (internal) and borrowed lights	286	18·53
Wall finishes	243	15·75
Stage platform including steps up and apron	94	6·09
Built-in fittings	36	2·33

Element	*Total cost in pounds*	*Cost in pence per ft.s.*
Ironmongery	183	11·86
Plumbing (external)	83	5·38
Plumbing (internal)	138	8·94
Sanitary fittings	177	11·47
Gas installation (including fittings and heaters)	556	36·02
Electrical installation	282	18·27
Drainage	425	27·54
Glazing	118	7·65
Decoration	359	23·26
Gross total cost	£9,130	591·58
		49/3·58
Cost per ft.s. (3,704 ft.s.) =		49s. 3½d.

COST COMMENTS

When comparing this analysis with that of the Church Hall at Chessington (AJ, August 11) certain factors must be borne in mind. Although both halls were designed to seat a maximum of 300, the clients' brief at Hatfield included an additional two committee rooms with the result that the target cost at Hatfield was 50% greater than at Chessington and the area per place increased by some 66⅔% from 17·43 to 12·33 ft. super. Had the floor areas remained the same and only the target cost at Hatfield increased by 50%, then the gross cost per foot super could have been increased by the same amount.

Similarly, if the target costs had remained the same and the area per place at Hatfield increased by 66⅔%, the gross cost per foot super would have had to be decreased by that amount to get within the cost limit. As it is, these two variables of target cost and area per place have combined to make a difference of some 19% on gross cost per foot super (this amply demonstrates the care one must use when estimating solely on a foot super basis). Therefore, when comparing these two cost analyses it should be remembered that only those elements directly based on floor area can themselves be directly compared:

	Hatfield	*Chessington*
	s. d.	*s. d.*
Roof	7 4½	10 2
Rooflights	10	
Floor finish	3 10	1 9

The roof construction at Chessington is more expensive than at Hatfield, but a more detailed cost study would take into account the relative thermal and acoustic properties, fire resistance, the advantages of using the troughs of the prefabricated roof units as service ducts, and all other relevant factors. Any "savings" in roof construction made at Hatfield show at least in the floor finish where a higher standard has been possible.

CHURCH HALL

at CUTTYS LANE, STEVENAGE NEW TOWN, HERTS

designed by EDWARD D. MILLS and OLIVER CAREY

quantity surveyors, LESLIE W. CLARK

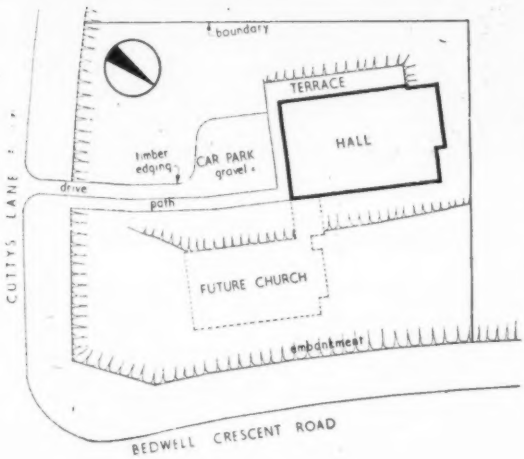


View from the east.

This building is the first half of a complete church unit, designed to serve temporarily as a church, and permanently as a multi-purpose hall. The total cost including site works was £7,650 and the general contractor was William Sindall Ltd. For sub-contractors, see page 306.

The hall from the south.





The Trustees of the church acquired a site in Stevenage New Town at the junction of Cuttys Lane and Bedwell Crescent, with the intention of developing a complete church unit. The limited funds, however, made it necessary for the scheme to be developed in two stages, the first consisting of a multi-purpose hall to be used for week-day activities and Sunday services, with a seating accommodation for 200 people, a stage, a large classroom, kitchen, male and female lavatories and a small entrance hall. The sloping site meant that considerable care had to be taken in the placing of the building, both in relation to the future development and the adjoining housing. Simple construction was adopted and materials similar to those employed on neighbouring housing were considered to be the most suitable. The hall looks out over a pleasant open space and has large windows and access on to a paved terrace. Provision is made for car-parking as required by the council and the site is being landscaped.

Left: Site Plan.



CHURCH HALL AT STEVENAGE

Above: the main entrance. Externally, the walls are faced with light-coloured sand-faced bricks set on a bituminous painted brick plinth. The polished hardwood entrance doors have anodized-aluminium push rails and kicking plates and the wood window frames, soffit boarding and fascia are painted white. The v-jointed soffit boarding is continued to form the entrance hall ceiling (see photograph bottom left page 297).



WORKING DETAIL **WALLS AND PARTITIONS: 23**

GLAZED WALL: SCHOOL AT CATFORD

J. L. Martin, Architect to the London County Council; S. F. Horsfall, Assistant Schools Architect; W. J. Smith, architect-in-charge

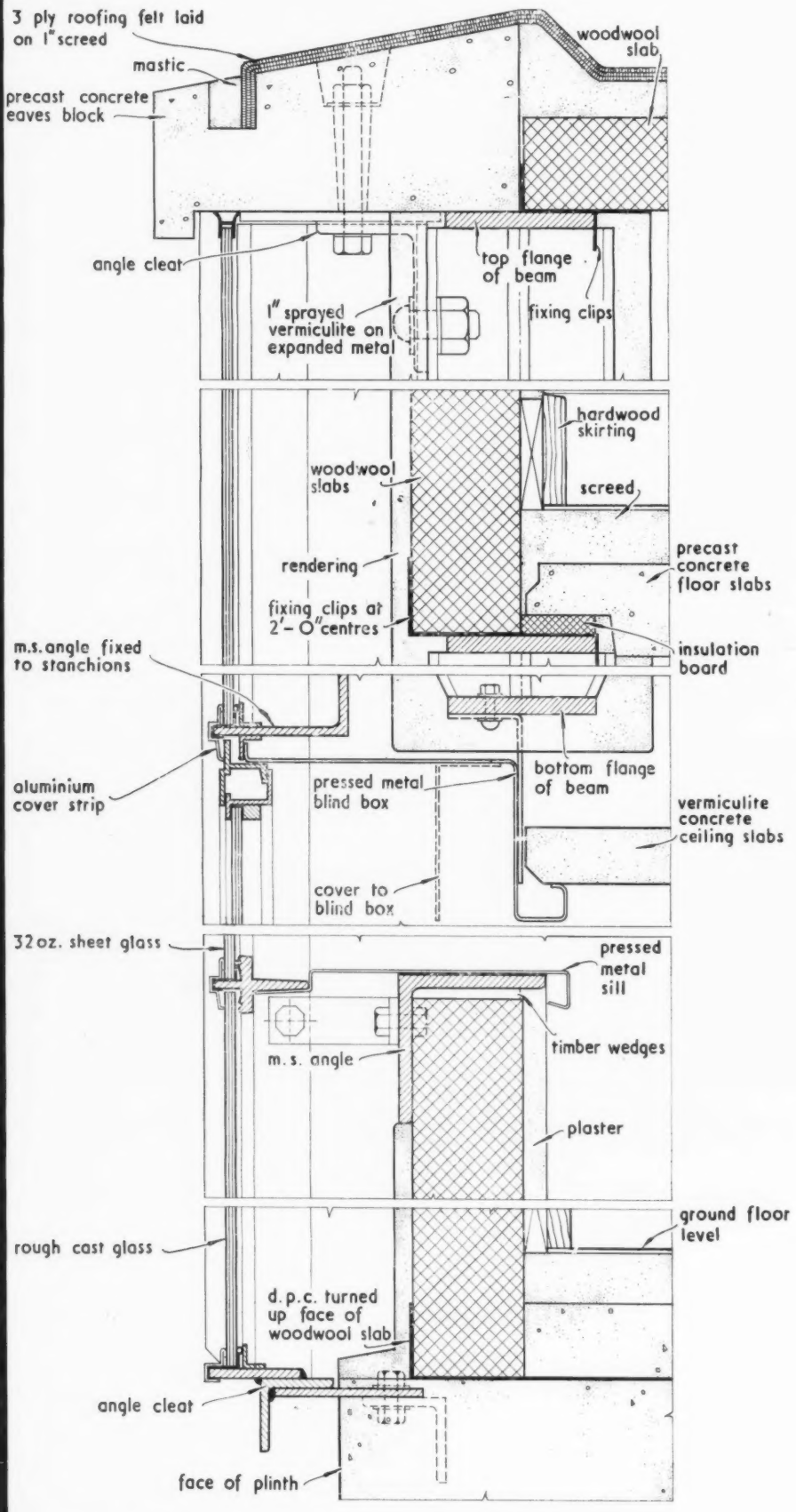


This glass curtain walling is formed of mild steel mullions and transoms of cruciform section, supported at each floor on a horizontal m.s. angle fixed to a strap welded to the beam.

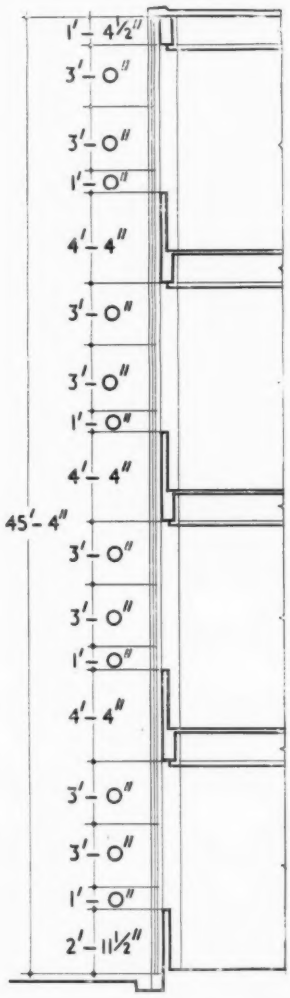
WORKING DETAIL **WALLS AND PARTITIONS: 23**

GLAZED WALL: SCHOOL AT CATFORD

J. L. Martin, Architect to the London County Council; S. F. Horsfall, Assistant Schools Architect; W. J. Smith, architect-in-charge



VERTICAL SECTION THROUGH GLAZED WALL. scale ¼ full size



KEY SECTION.
scale 1/8" = 1'-0"

WORKING DETAIL **STAIRCASES: 21**

STAIRCASE: SCHOOL AT CATFORD

J. L. Martin, Architect to the London County Council; S. F. Horsfall, Assistant Schools Architect; W. J. Smith, architect-in-charge

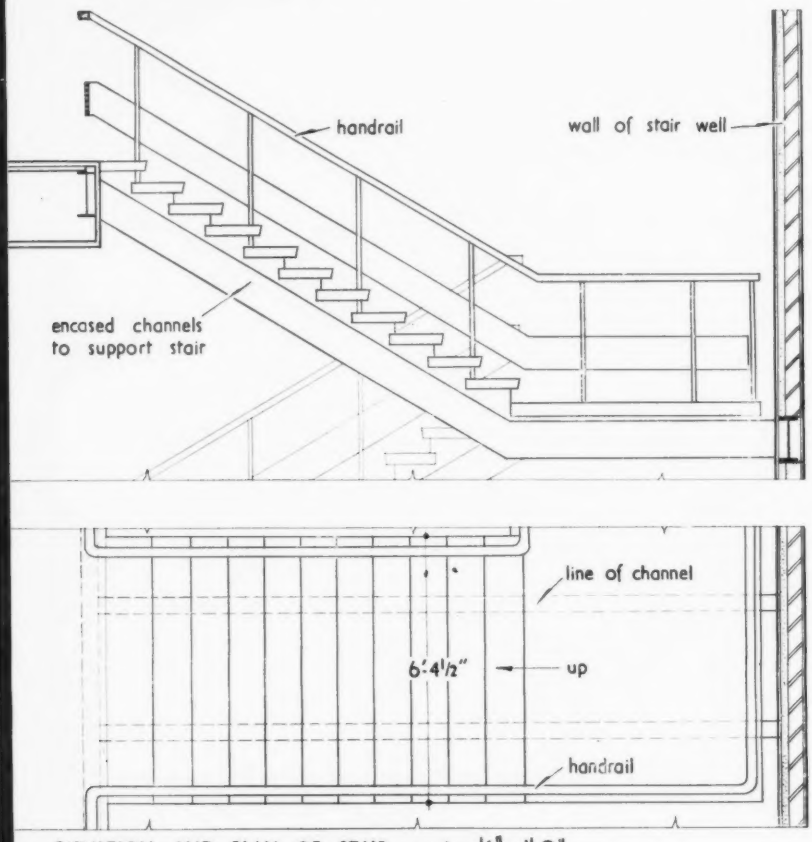


The two rolled steel channels forming the strings of this staircase are encased, for fire protection, in vermiculite rendering sprayed on expanded metal. Treads and risers were precast but the landings were formed in-situ.

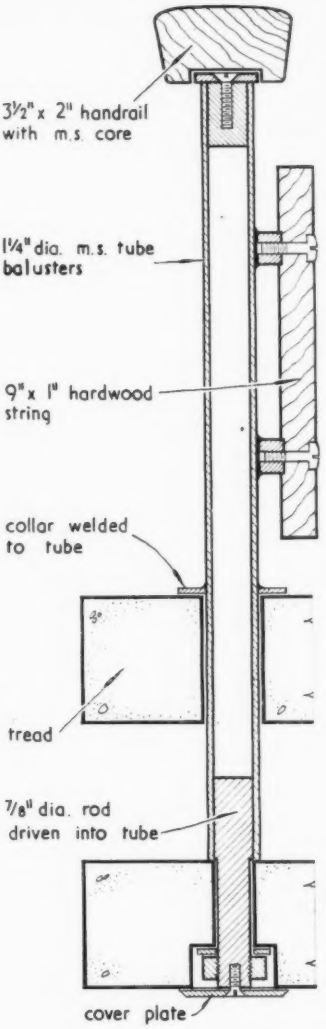
WORKING DETAIL **STAIRCASES: 21**

STAIRCASE: SCHOOL AT CATFORD

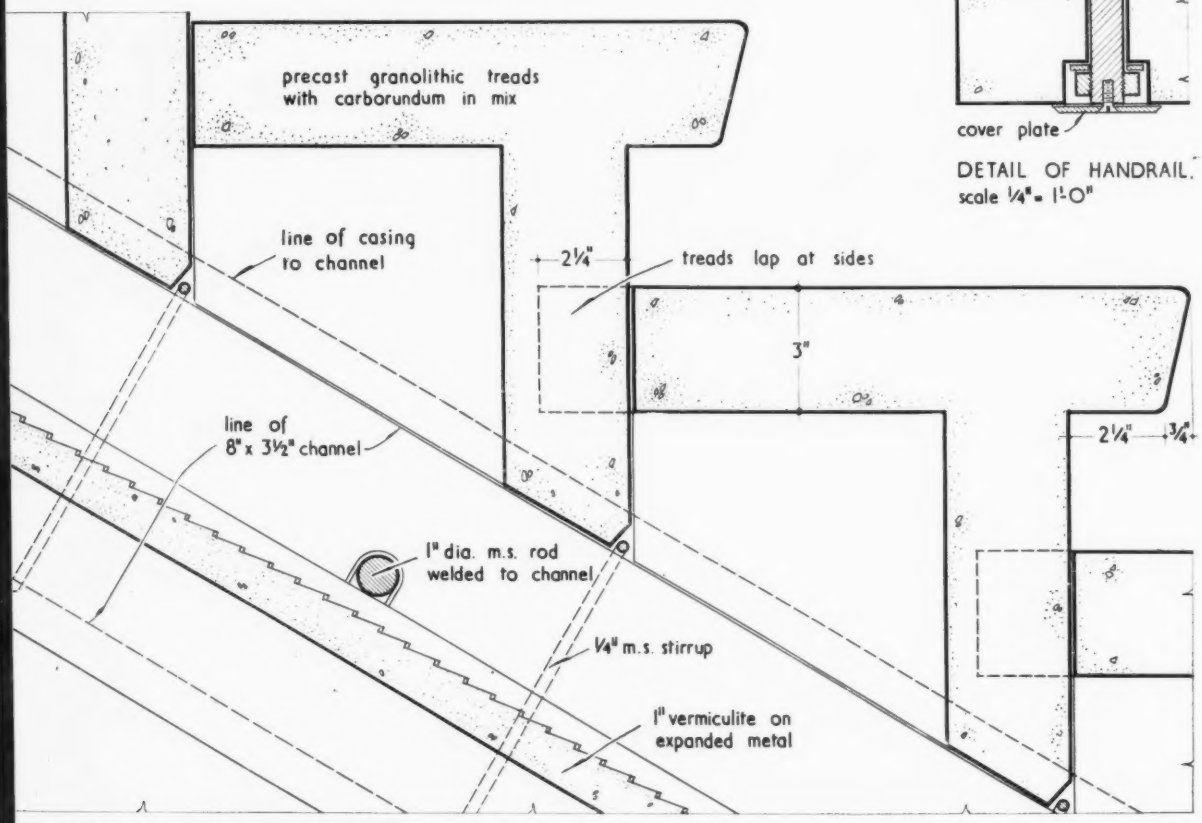
J. L. Martin, Architect to the London County Council; S. F. Horsfall, Assistant Schools Architect; W. J. Smith, architect-in-charge



ELEVATION AND PLAN OF STAIR. scale ¼"= 1'-0"

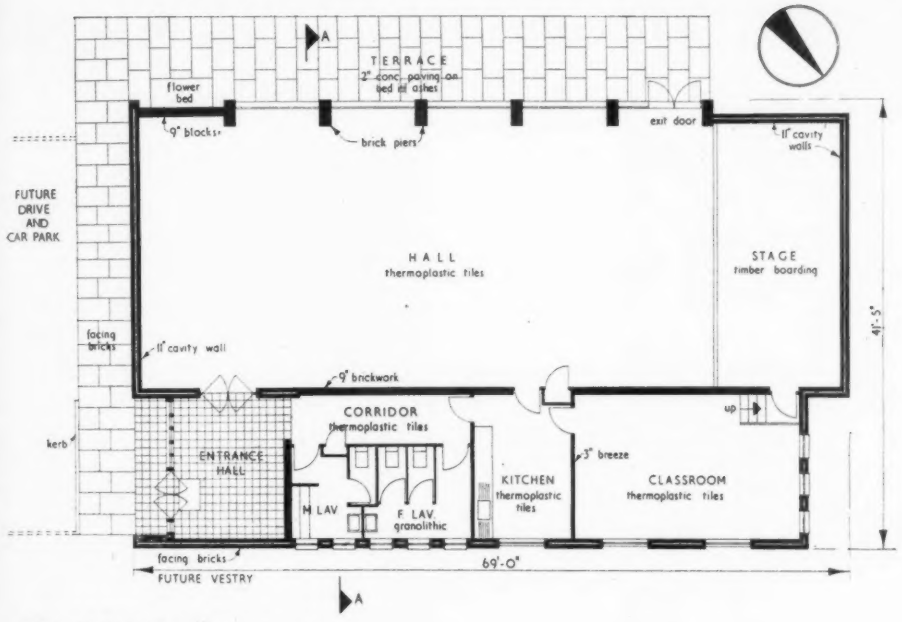


DETAIL OF HANDRAIL. scale ¼"= 1'-0"



SECTION OF STAIR. scale ¼ full size





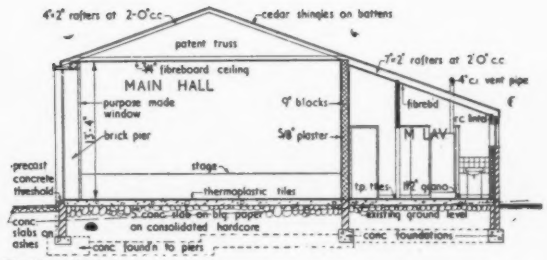
Ground floor plan [Scale : $\frac{1}{16}$" = 1' 0"]

CHURCH HALL AT STEVENAGE





Above: the main hall looking towards the stage. The ceiling is $\frac{1}{2}$-in. fibreboard hung from TDA roof trusses, ceilings and walls being painted white. The thermoplastic flooring tiles are dark brown and the stage upstand, with doors to the chair storage under the stage, is polished plywood. To the right can be seen an independent gas heater, and an electric clock beyond. Left: from the main hall, looking towards the red quarry-tiled entrance with mat well. Soffit boarding continues in the entrance ceiling and is painted white.

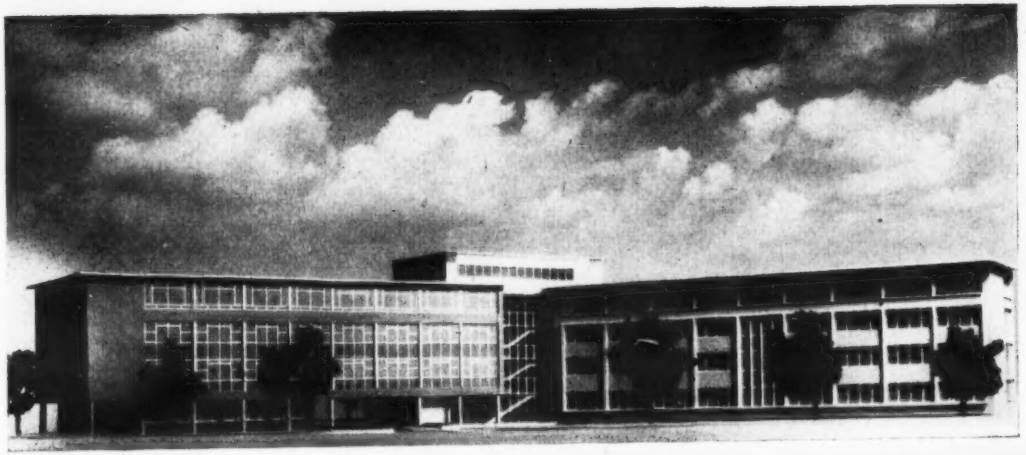


Section A-A



Factory at Wigan

Above is a photograph of the proposed factory for H. J. Heinz & Co. Ltd., to be built at Kitt Green, Wigan, Lancashire. The factory, which will have a total floor area of 699,500 sq. ft. in the main building, has been designed by E. D. Jefferiss Mathews of J. Douglass Mathews and Partners (Associate-in-charge, Michael Ryan) in collaboration with Skidmore, Owings & Merrill.



Offices at Slough

On the right is a photograph of the model of the office building designed by T. P. Bennett & Son for the Paints Division of I.C.I. Ltd. The building, which will have a total floor area of 70,000 sq. ft., will be built on a 4½-acre site in Wexham Road, Slough, across the road from the existing factory, to which it will be connected by a tunnel. The offices are designed with a Y-shaped plan and will accommodate a staff of approximately 500.

From Grand boile extin slab ium syste

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TECHNICAL SECTION

The Coal Utilisation Council* recently announced publication of two technical reference books. On the information sheet—loose leaf binder principle, they will give technical information and dimensioned drawings of all the appliances on the CUC's recommended list—stoves, open fires, combination grates, cookers and boilers. Further sheets will be issued as new appliances come on the market and existing ones are changed. The first book will appear at the end of this year, the second in 1956, and they will cost £2 10s. 0d. the pair—inclusive of new sheets for two years following. Architects have always asked for standardised presentation of technical information, so this move should be welcomed.

* Coal Utilisation Council, 3, Upper Belgrave Street, S.W.1

THE INDUSTRY

From the Industry this week Brian Grant reports on two solid-fuel boilers, a new development in fire extinguishers, plastered wood wool slabs, convection heating, aluminium cladding and a staff locator system.

SOLID FUEL BOILERS

Radiation Ltd. have recently announced two new solid-fuel water-heating devices. The first is the Nautilus No. 55 boiler which will provide the usual domestic hot-water supply and at the same time will heat radiators from 70 to 80 sq. ft. in area. The temperature of the water can be kept anywhere from 120° to 180° Fahrenheit by an adjustable thermostat and the boiler has a maximum output of 40,000 B.T.U.s per hour. Maximum fuel consumption is 5 lb. per hour and the minimum figure is between ½ and ¾ lb. per hour; the recommended fuel is 1 to 2 in. gas coke but most smokeless solid fuels are also quite satisfactory. Refuelling is usually necessary only twice a day with once-daily ash clearance. The water jacket completely surrounds the fuel bed and the manufacturers claim that the thermal efficiency of the boiler is between 65 and 70 per cent. The front and sides of the boiler are in sheet steel finished in cream stove enamel, while the top is in cast iron vitreous enamelled grey. The price is £33.

The other device is the Mark II Chevin boiler flue set, which will fit any 16-in. Radiation fire and give normal domestic hot water and at the same time heat a small radiator or towel rail. The flue connection includes an adjustable throat restrictor which protects the tiled surround from the effects of heat and at the same time improves the room heating by preventing over-ventilation. An optional extra is a sunken hearth plate which increases the ash capacity and does away with the need for an ash pan, at the same time reducing the risk of burnt-out fire bars. Maximum output is 10,000 B.T.U.s per hour and the recommended fuels are under 2-in. coke or 1-in. to 3-in. coal, though anthracite or manufactured fuels can also be used. (*Radiation Group Sales Ltd., Belper Production Centre, Park Foundry, Belper, near Derby.*)

FIRE EXTINGUISHERS

A recent development in fire-fighting methods is the use of water to which a wetting agent has been added. When water is used on porous materials, its surface tension tends to prevent it from penetrating the texture of the materials themselves, so that deep-seated hot spots may not be properly cooled. According to tests carried out by the United States Navy, the addition of a wetting agent nearly doubles the cooling efficiency of the water and, with extinguishers which only hold two gallons or so, this is quite a considerable improvement. Messrs. Nu-Swift produce extinguishers in which the water-propelling agent is carbon dioxide compressed into a container which remains sealed until the extinguisher is required. In two of this company's models an alternative

to the plain pressure charge is the "wet water" charge which consists of the CO_2 container plus a plastic bag which contains the wetting agent. As soon as the extinguisher is operated the pressure of the carbon dioxide immediately bursts the plastic bag and mixes the wetting agent with the water. It should perhaps be added that when the wetting agent is used anti-freezing mixtures should not be used as well and the extinguishers must therefore be kept where the temperature will not fall below freezing point. (*Nu-Swift Ltd., Elland, Yorkshire.*)

PLASTERED WOOD WOOL SLABS

When wood wool slabs are used as roofing panels it is quite common practice to leave the surface exposed and to show the texture of the wood wool itself. Messrs. Thermacoust, however, have now produced pre-plastered slabs which have their lower surfaces impregnated during manufacture with hard plaster for a depth of about ¼ in. Wood wool provides an excellent key and reinforcement for the plaster and at the same time the slab has a flatter and smoother surface than can be produced by a skilled plasterer on the site. The finish will take any distemper or emulsion paint suitable for use on plaster and these slabs should show a considerable saving on the cost of plastering a wood wool roof *in situ*, with all the scaffolding and labour involved. The slabs consist of either 2-in. thick channel reinforced or 3-in. thick rebated channel reinforced slabs, the channels being pressed on to the completed slab and thus protecting the long edges of the plaster finish from damage in handling. The slabs are available in 6-ft., 6-ft. 8-in., and 7-ft. lengths, and have the advantage that they provide a roof structure, thermal insulation and a ceiling finish in one building unit. (*Thermacoust Ltd., 39, Victoria Street, London, S.W.1.*)

CONVECTION HEATING

Quite a large proportion of the solid fuel appliances now on the market are arranged to provide convected warm air heating either in the room where they are installed, or in other rooms on the floor above. The arrangement of the necessary ducting and inlet/outlet grilles is not always easy, but Messrs. Radiation have now standardized a range of three grilles, all of which are made in two types: a plain open grille, and a grille which is closable by means of a lever-operated flap. The two larger models have an open area of 22 sq. in. and measure 16½ by 4½ in., one version being made with cramps for fixing in the tile surround of the fire and the other having a box frame for building into brickwork. There is also a smaller model with an opening area of 9 sq. in. and measuring 4½ in. by 8½ in. for building into the tiled surround. The grilles may be used in various ways, as inlets at the bottom of the fire with an outlet at the top, either in the same room or in an adjoining room, or both, convected heat being transmitted to either room by adjusting the flaps of the grilles. An alternative method to be used when heat is required in an adjoining room is to use the back access panel, illustrated in the photograph bottom left. This consists of two grilles mounted at the top and bottom of the framework, the space between them being filled by a removable sheet-steel access panel, which takes the place of the brickwork at the back of the normal convection chamber. (*Radiation Ltd., 11, Stratford Place, London, W.1.*)

ALUMINIUM ROOFING AND CLADDING

Mention has already been made in the notes of the Kynalok secret-fix cladding system, which uses a specially profiled aluminium alloy sheet in conjunction with an insulating lining. To the preliminary leaflet has now been added an extremely useful manual of arrangement and construction drawings which gives full details of walls and roofs as well as information about treatments at ridges and eaves and also where the system is used in conjunction with patent glazing or with industrial windows. A full range of flashing strips is also produced as well as ridge cappings and sill junction pieces. (*Imperial Chemical Industries Ltd., Metals Division, PO Box 216, Kynoch Works, Birmingham, 6.*)

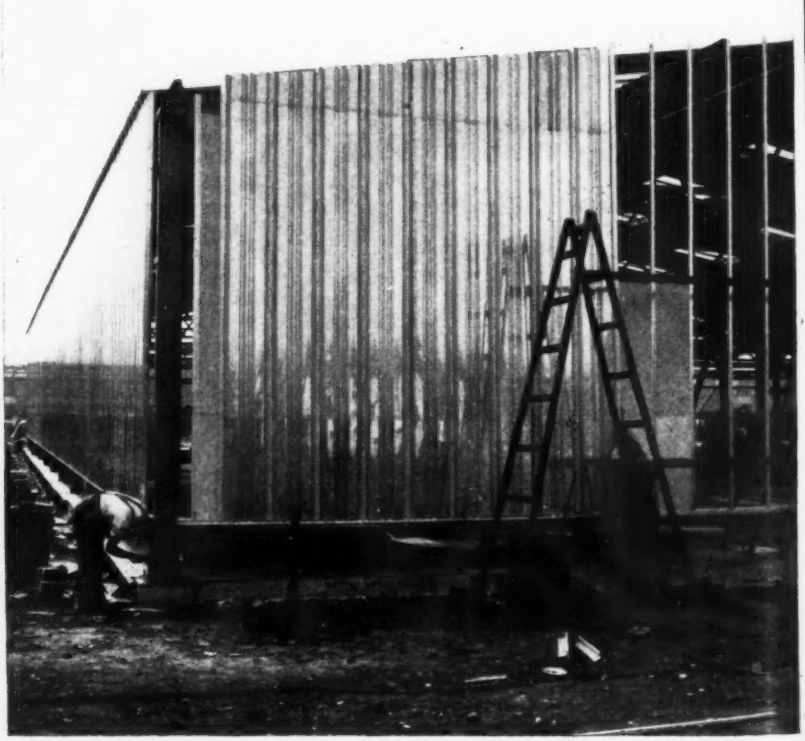
STAFF LOCATOR SYSTEMS

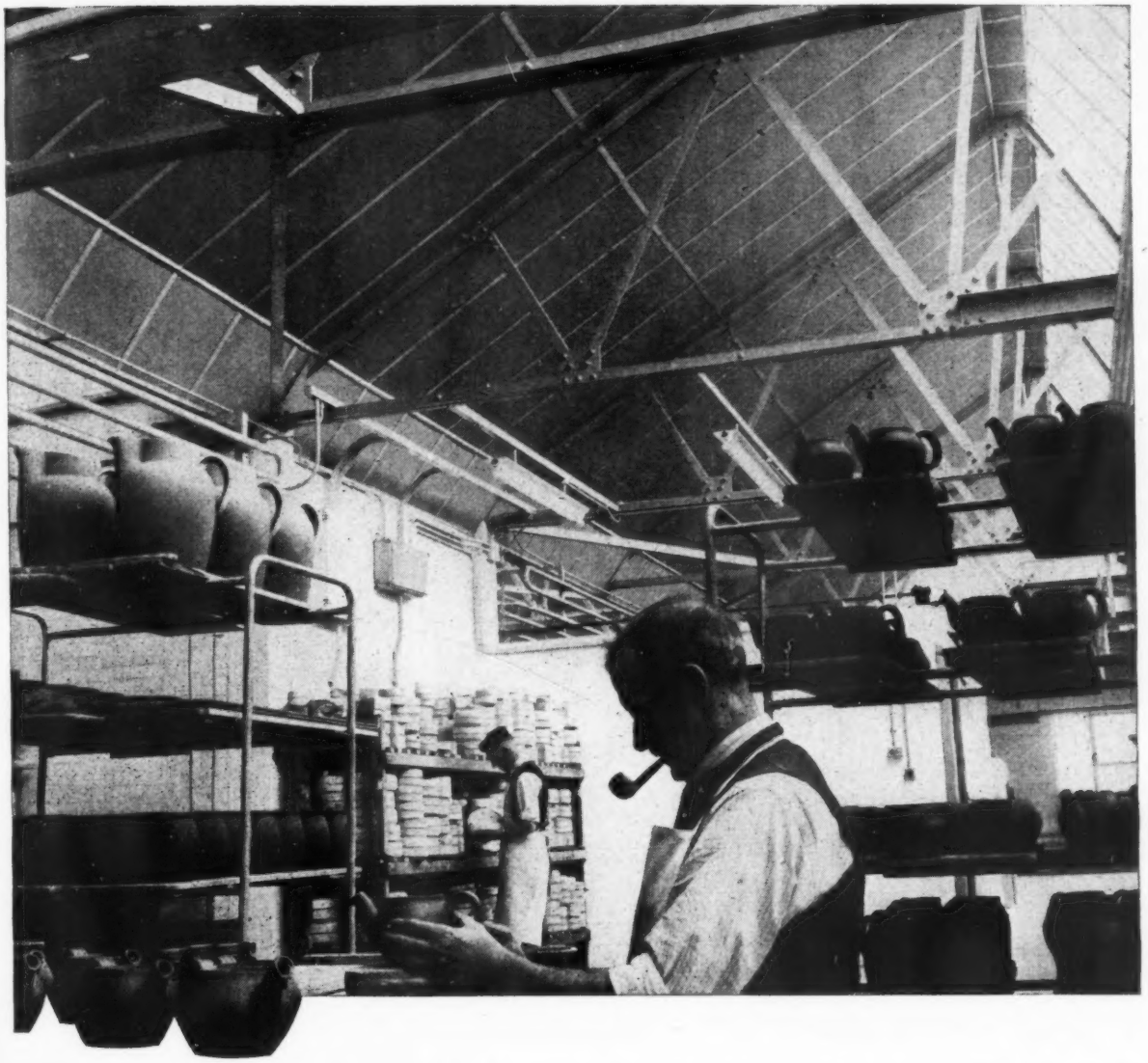
A new staff locator system known as the Pioneer has recently been introduced by Communications Systems Ltd. The indicators are automatically illuminated by a control unit and up to 80 codes are obtainable. Both ceiling pendant and wall mounting versions are available and all indicators can, if required, be supplemented by an alarm signal. (*Communications Systems Ltd., Strowger House, 8, Arundel Street, Strand, London, W.C.2.*)

Below left: "Thermacoust" pre-plastered channel reinforced wood wool slab. Bottom left: convection heating grille by Radiation Ltd. Below right: Kynalok secret fix cladding being erected.









What does cold weather cost you – in good work?

When this photograph was taken at Denby Potteries, near Derby, it was freezing outside. Yet the men you see are working *in their shirt sleeves* unconcernedly and skilfully.

Look to the roof for the explanation. It is lined with ½ in. Lloyd Insulation Board. Before insulation the highest work-temperature that could be attained when it was really cold was 46°F. Now it is a comfortable 62°F—a direct increase of 16°F, achieved without incurring the heavy expense of either new heating plant, *or greater fuel consumption by the existing plant.*

There follow other advantages vital for such work. Lighting is better and more easily reflected; dust is excluded; in summer, solar radiation is reduced, and cool working conditions are ensured.

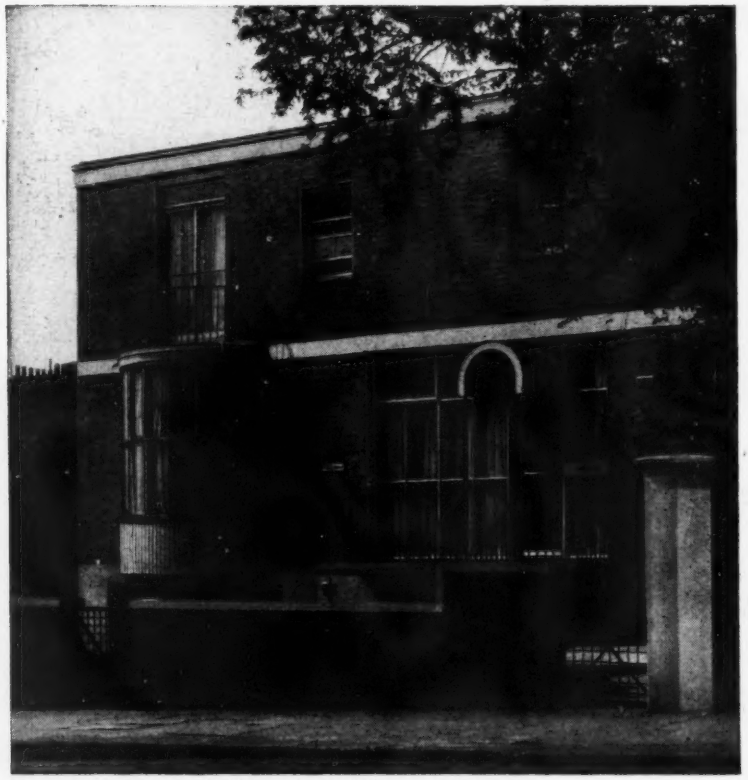
Insulation makes sense for most factories. Ask for a copy of "The Heat Barrier" booklet, which enables you to calculate, as nearly as possible, how soon the money saved on fuel bills will catch up the initial cost of insulating your own works.

WHEN IT'S A MATTER OF KEEPING WARM AND SAVING FUEL HAVE A WORD WITH

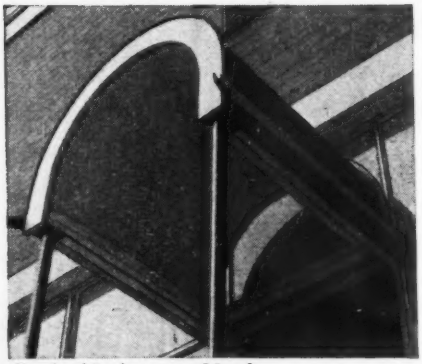
BOWATERS BUILDING BOARDS LIMITED

Bowater House, Stratton Street, London, W.1. Tel: GRO 4161 *A member of the Bowater Organisation.*

ZINC WEATHERINGS



House at Kensington. Architects: Leonard Manasseh & Partners.



Porch with zinc covered hood.



Detail of porch hood, showing gutter.



Zinc weathering on window sill.



Weathering to curved sill of bay window.

In this house, contemporary design fits snugly into a Kensington background. It also illustrates some interesting uses of zinc—to cover the neat porch hood, and as weatherings for window sills and roof verge. For weatherings, zinc is easy to fix and rigid, and prevents staining of wall surfaces.

From roof to foundation, zinc has vitally important uses in contemporary building—for gutters, pipes, weatherings, flashings and hoods. And there are now no restrictions on its use. Supplies are plentiful, and likely to remain so. The price of zinc has dropped considerably, and it is now one of the cheapest permanent materials.

The Zinc Development Association is a non-trading body which is always prepared to give technical help to potential users. Publications, together with lists of stockists of all zinc building materials and of firms specialising in zinc work, are freely available.

THINK ZINC (Zn)

ZINC DEVELOPMENT ASSOCIATION · 34 BERKELEY SQUARE, LONDON, W.1 · TELEPHONE. GROSVENOR 6636

THE DESIGN AND PRACTICE OF JOINERY

by John Eastwick-Field and John Stillman

6: THE DESIGN AND MACHINING OF JOINTS, 2 continued

We conclude this week the article begun on July 21, 1955 and continued on August 25, 1955. Groups 5, 6, 7 and 8 cover some of the more common joints, and machines manufacturing these joints are illustrated.

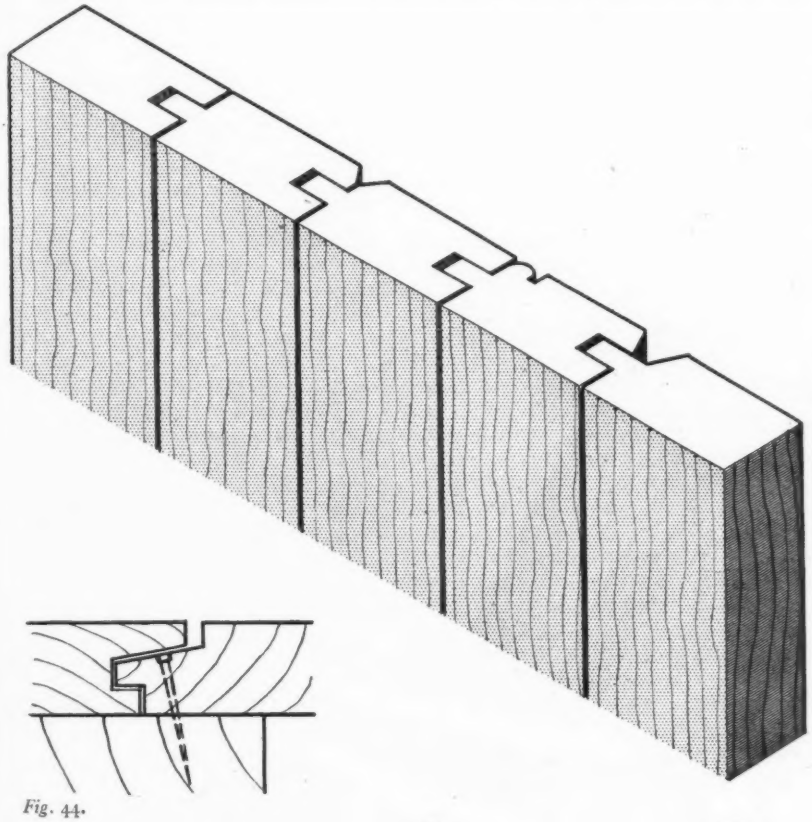


Fig. 44.

GROUP 5: BOARDS JOINED LONGITUDINALLY, ALLOWING MOVEMENT, AS IN MATCHBOARDING

Fig. 44. Tongued and Grooved Matching Joints: The illustration shows four loose joints which are examples of a variety of joints which should be used when the boards are fixed individually to cross members such as joists or battens, and the moisture movement across the width of each board is to be taken up in the joints.

The mouldings shown in three of the joints are intended to disguise the opening which occurs when the boards shrink. The mouldings could, of course, be made on both sides of the boards. It will be noticed that the tongue is not as deep as the groove which receives it, so as to ensure that the shoulders shall fit tightly. The line drawing shows how the boards can be secret nailed.

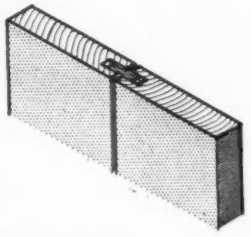


Fig. 45.

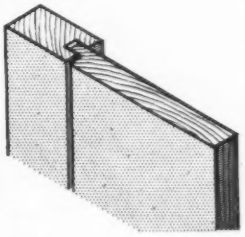


Fig. 48.

Fig. 45. Loose Cross Tongue: An alternative to the joints shown in Fig. 44.

Fig. 46. Tongued and Grooved Joint: A simple joint which would be applicable to, for instance, a large panel in a box frame.

Figs. 47, 48 and 49. Panel Joint: The illustrations show three basic methods of inserting panels in frames. Each allows for moisture-movement of the panel, but has a different appearance. Elaborations of these methods, including a wide variety of mouldings, were commonly used in traditional work, particularly in the design of doors, and details can be found in many older books.

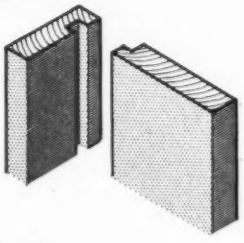


Fig. 46.

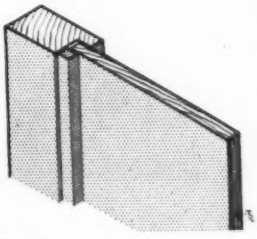


Fig. 49.

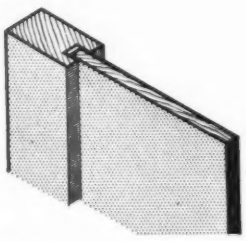
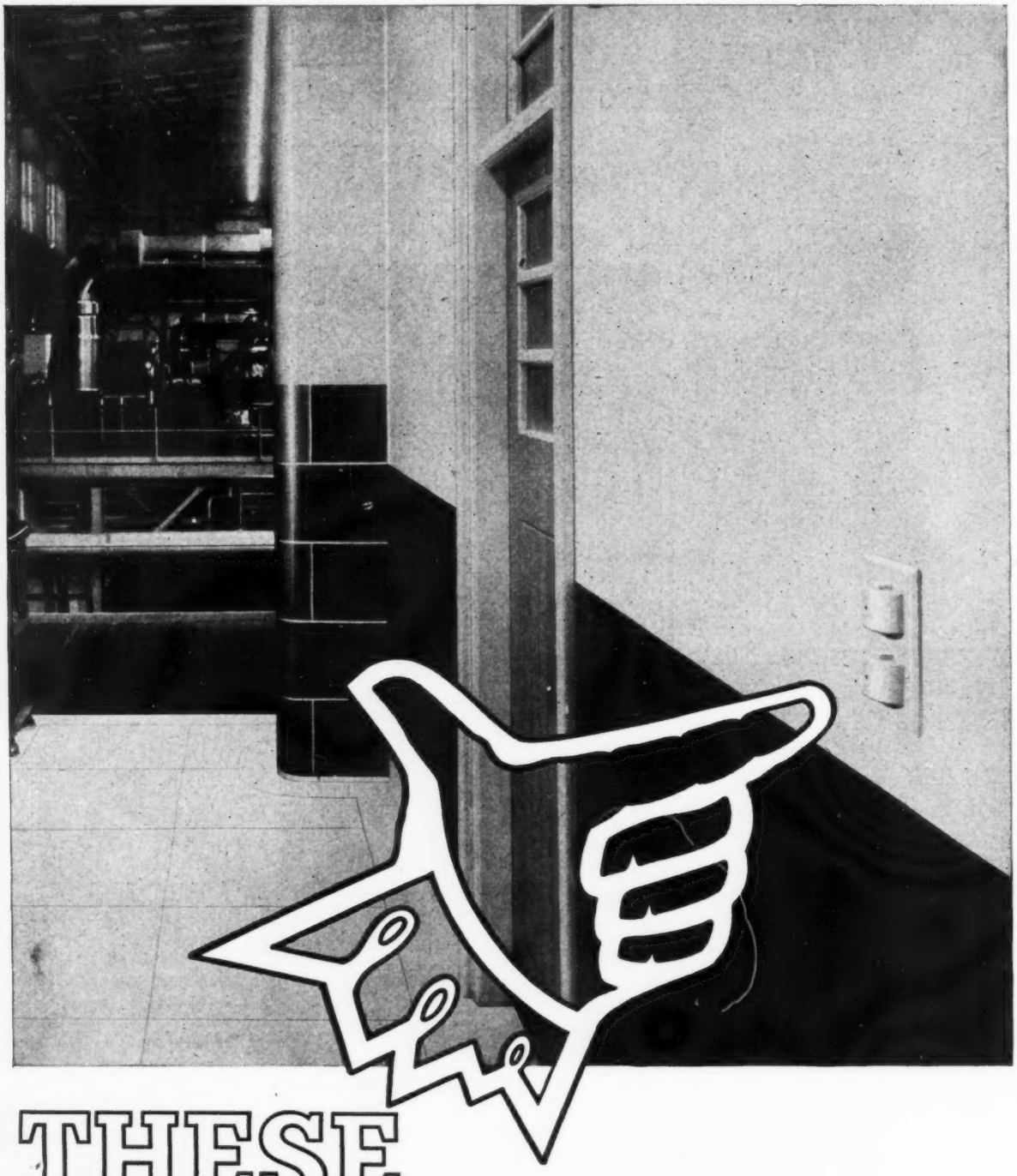


Fig. 47.



THESE

are Surrey switches,
in Rye House Power Station, Hoddesdon, Herts.

Surrey switches were specified by the Eastern Division of the Central Electricity Authority for use throughout the administration blocks of their three newest Power Stations. Sufficient recommendation for quality and reliability of these unique switches. Complete catalogue of electric wiring accessories available on request.

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GROUP 6: END-TO-END JOINTS, AS IN A HAND RAIL OR AN EXTRA LONG CILL, AND THE JUNCTION OF MEMBERS IN A CURVED FANLIGHT

A satisfactory neat joint is difficult to make when the end grain of two pieces of wood butt. The two main methods of making the joint are to cramp the two pieces by some fixing device, and to cut the pieces or insert dowels into them so as to provide glueing lines along the length of the grain. It is not satisfactory in practice merely to glue the two surfaces of end-grain. The difficulty of making the joint is emphasized by the fact that the most successful and widely-used method requires a specially-designed metal bolt known as a "hand-rail bolt." As a matter of common sense, joints in the lengths of sections are avoided and components are mostly designed within the lengths of timber normally available.

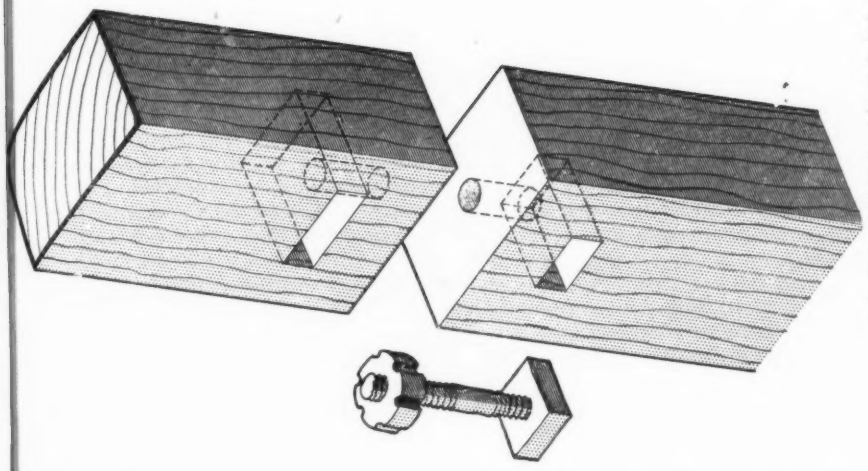


Fig. 50.

Fig. 50. Handrail Bolt: Although its name would suggest a limited use, this is, in fact, found in many places other than hand-rails. It consists of a bolt threaded at both ends, inserted through holes into the ends of each piece of wood to be joined, and secured by nuts let into slots at the ends of the holes. It is tightened by hammering one of the nuts, which has a serrated edge, with a special tool. In order to provide alignment whilst tightening, two or more dowels need to be inserted. In the hand of a craftsman accustomed to the making of hand-rails the joint can be made practically invisible.

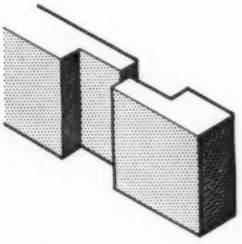


Fig. 51.

Fig. 51. Halved Joint: This is a simple joint much used in carpentry. In joinery it is found in rails and long cills. It should be glued and screwed.

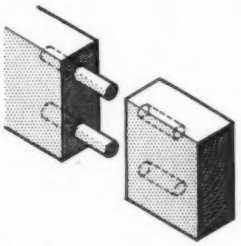


Fig. 52.

Fig. 52. Dowelled Joint: A furniture-maker's joint. When dowels are used in joinery in this way they are usually associated with a hand-rail bolt which keeps the joint in compression and avoids subsequent opening

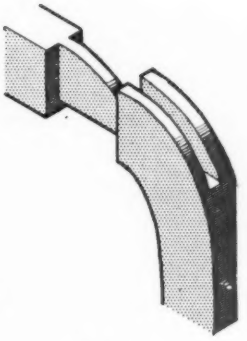


Fig. 53.

Fig. 53. Slot Mortice and Tenon: A joint which could be used to join the ends of straight members, but in fact is more usually associated with the junction of curved members.

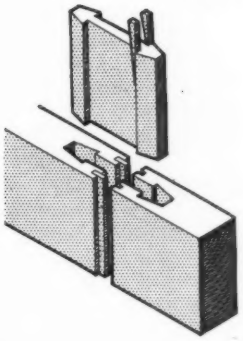
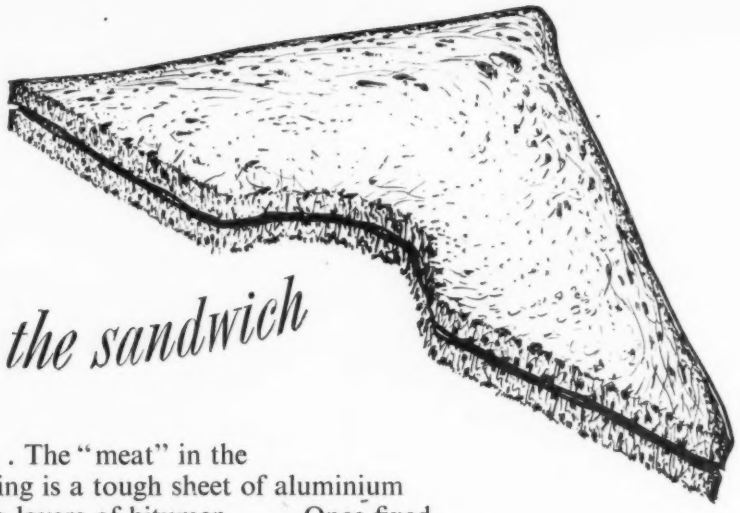


Fig. 54

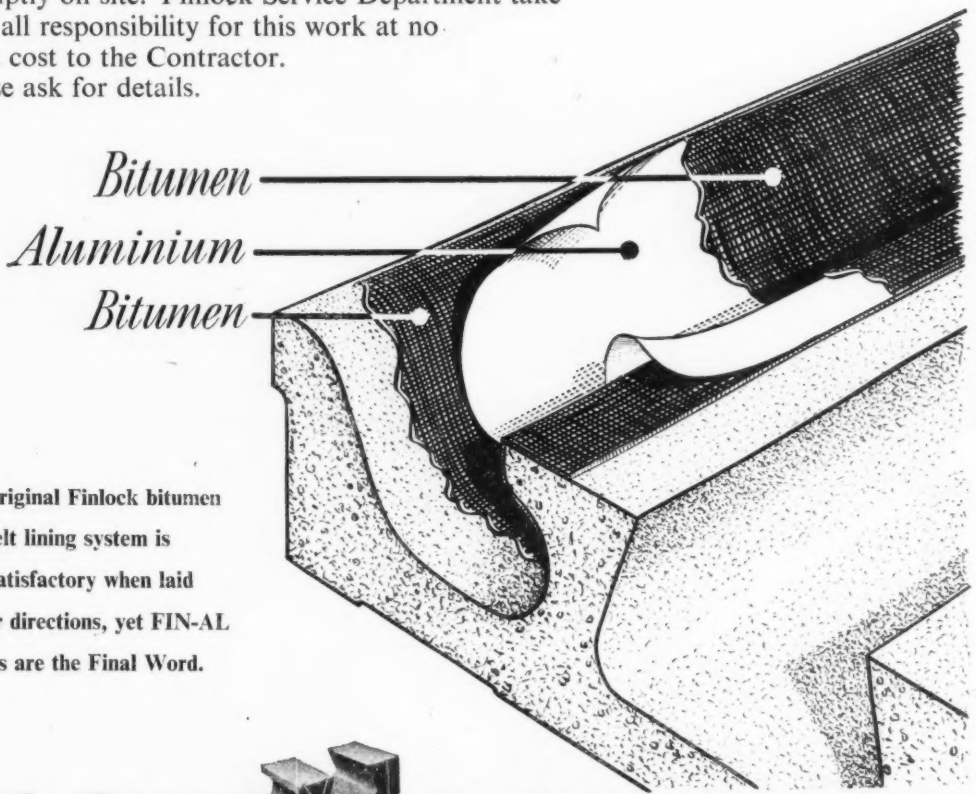
Fig. 54. Hammer-headed Key: A traditional joint which would now more often be made with a hand-rail bolt. It is still used for special work where, for some reason, the traditional practice is required, although it does not appear to have any particular advantages. The key and wedges should be made of hardwood. Many of the joints which we have described can be used with built-up boards, but there are a number which we have not described that are specially applicable to them. We shall illustrate these in a later article.



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GROUP 7: JOINTS BETWEEN BUILT-UP BOARDS

we shall publish notes about joints in this group in a future article on the manufacture and supply of built-up boards.

GROUP 8: MISCELLANEOUS FASTENINGS

In this last group we give some notes on metal fastenings. Already in the introduction to the subject of joints the legitimate uses of nails and screws have been described.* It is, however, useful to be able to indentify the most common varieties, and to know their characteristics. As with many other components used in traditional construction, there is a bewildering range. In wood screws alone, Guest, Keen & Nettlefold's catalogue shows some fifty types, each of which are made in many sizes. Steel counter-sunk head screws, for instance, are made in lengths from ½ in. to 8 in., each length in a number of diameters, indicated by a screw-gauge number. The smallest gauge is 4/0 and the largest 40. Thus 1-in. screws can be obtained in screw gauges 1 to 18. Besides steel and brass, screws are made in stainless steel, aluminium alloy, gun-metal, and nickel-silver. Steel screws may be self-colour, or finished Japanned, sheradized, black-oxidized, or plated BMA, copper, chromium, cadmium or zinc.

Heavy-cut steel nails of roughly-square cross section, to be used mainly in rough work, known as clasp-nails, floor-brads and joiners' brads, are made from 1 in. to 8 in. in length, plain steel or galvanized. Sprigs and tacks range from ½ in. to 1 in. Steel wire nails can be obtained from ½ in. to 10 in. long in gauges 3 to 20 SWG (the smallest number in this case being the thickest), galvanized, sherardized, annealed, blued, and in a number of different patterns. Wire nails and cut nails are covered by British Standard 1202.

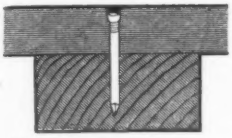


Fig. 55.

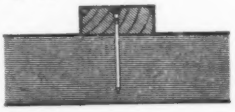


Fig. 56.

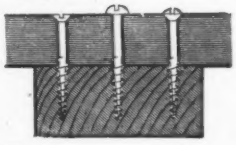


Fig. 57.



Fig. 58.

Fig. 55. Oval lost-head Wire Nails, (sometimes called American wire nails.) These have the advantage over the round wire nails with flat heads (French nails) that they can easily be punched below the surface and concealed by stopping. They are therefore very commonly used for fixing such items as architraves and picture rails on site. They are made from ½ in. to 3 in. in length.

Fig. 56. Panel Pins: These are thin wire nails with very small heads, as the name implies, useful for fixing mouldings, plywood panelling, insulating board linings and for other work where there is no great stress. Veneer pins are even smaller than panel pins, and "needle points" are fine steel needles which can be snapped off flush to the surface.

Fig. 57. Wood Screws: Screws clearly provide a stronger fixing than nails, besides causing no jarring or damage to the timber when they are inserted. This illustration shows three patterns commonly made in steel and brass:—counter-sunk, round and cup raised-head. These are covered by British Standard 1210.

Fig. 58. Brass Cups: The object of brass screw cups is to enable screws to be taken out and replaced occasionally without disfiguring the wood. Glazing beads and removable panels to ducts should be fixed with cups and screws for this reason. They consist of small brass rings which are glued into a slightly larger hole than that required for the screw. Needless to say they alter the appearance, and, in the authors' opinion, give a more finished look to the screwhead.

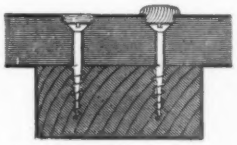


Fig. 59.

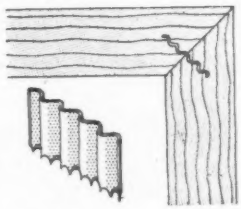


Fig. 60.

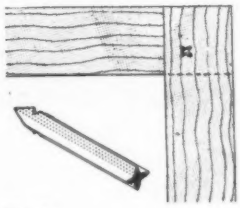


Fig. 61.

Fig. 59. Pellets and Plugs: Where, for the sake of appearance, it is desired to conceal screw-heads, and where the joinery is to be polished so that putty cannot be used, the traditional practice is to countersink the screws and to fill the holes with wood pellets or plugs. Pellets are usually circular, and cut from the same wood as the component in such a way that the top shows long grain to match the surrounding wood. They cannot therefore be cut from dowelling, as this would show end-grain on the exposed face. Plugs project above the surface and make no pretence at concealment and need not therefore be made of the same wood as the component itself.

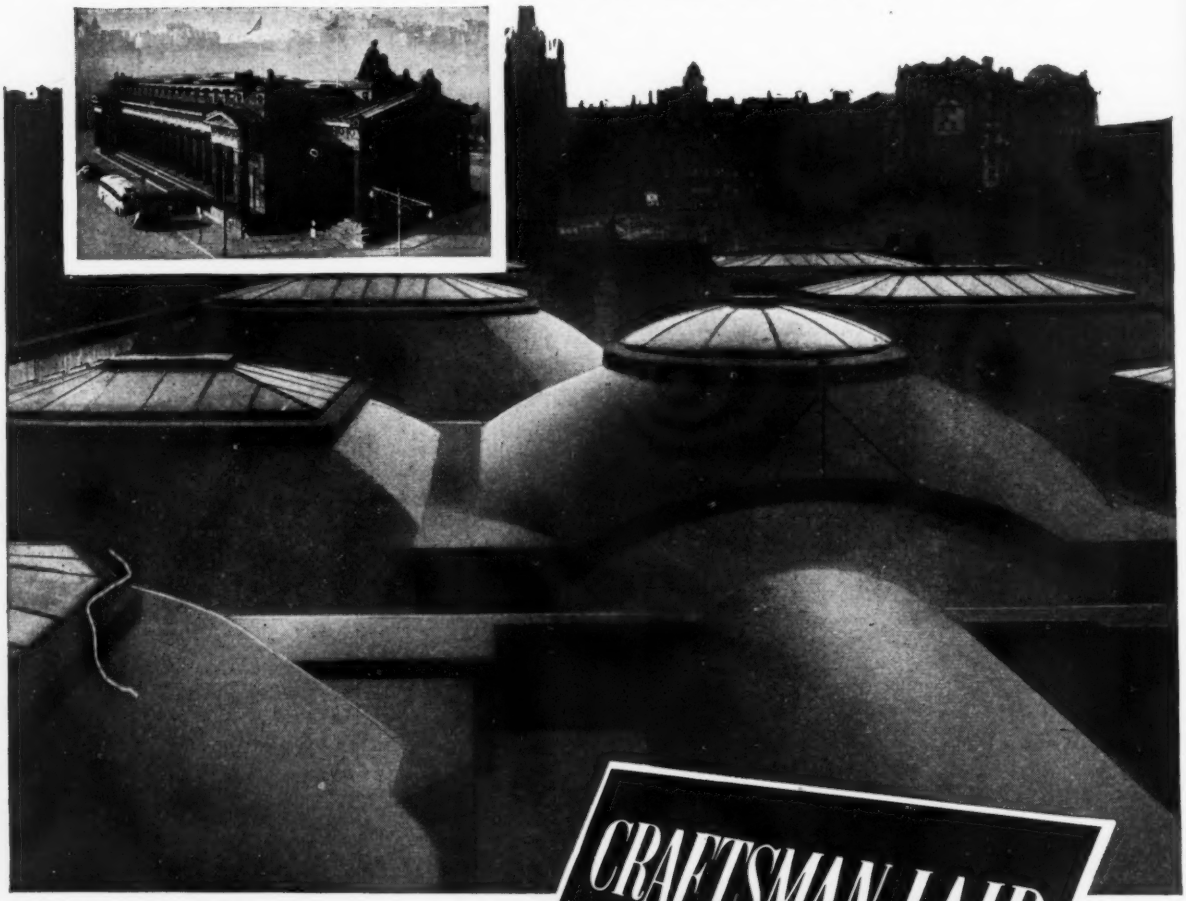
Fig. 60. Corrugated Fastener: This is not a fastening usually found in books on joinery. Nevertheless, it is found in some joiners' shops, in out of the way positions such as the backs of fittings and plinths. Properly it is suitable for packing-cases, but provided it is only intended to hold the two sides of a joint together whilst the glue sets, there seems no reason for its being banned in better work. It is made of steel, sharpened at one end to cut through the timber when it is hammered in.

Fig. 61. Metal Star Dowel: This has been associated with casement windows of Scandinavian origin which employ the comb-joint. The dowel is made of white metal and is so designed that it will not split the wood. Its primary function is to fix the joint whilst the glue sets, and there seems no objection to its use for this purpose.

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Fig. 62.



Fig. 63.

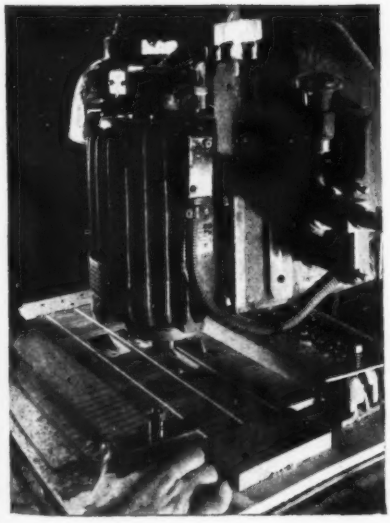


Fig. 64.

To conclude this article we illustrate the principal machines used for the preparation of joints.

SPINDLE-MOULDER WITH ATTACHMENT FOR CUTTING THE "BOX" OR "CORNER LOCKING" JOINT

As can be seen from Fig. 65 the attachment provides a number of cutters arranged in a spiral on the spindle. Four boards are being cut simultaneously by being moved on the carriage past the cutters.

TENONING MACHINE

Although tenons may be cut on a spindle-moulder, much greater speeds can be obtained for repetitive work on a machine specially designed to carry out the whole operation, including scribing the shoulders and cutting to length, in one operation. These machines may be constructed to cut the joint on one or both ends of the section and are therefore known as single- or double-ended tenoners. Fig. 62 shows a double-ended tenoner, and the caterpillar tracks which automatically feed the sections across the cutters. This machine is set up to cut slots in the ends of the sections, to make comb joints.

OVERHEAD RECESSING-MACHINE AND HIGH-SPEED ROUTER

This recessing-machine illustrated (Fig. 63) is mounted with a jig for cutting housings in a staircase string. It is similar in action to a high-speed router (Fig. 64), a machine which has been developed fairly recently but which is proving to be very useful. The high speed of rotation gives a very clean cut.

MORTICE-CUTTING MACHINES

Fig. 67 shows the action of the chain morticer and the hollow-chisel morticer (see also Figs. 66 and 68). Sometimes both tools are mounted on the same machine. The links of the mortice chain have sharp cutting edges and dredge out the mortice, leaving a round hole at the bottom: the hollow chisel, on the other hand, has a sharp square cutting edge with a drill revolving inside so that a clean square hole is formed. Since mortices are usually rectangular several holes with the hollow chisel have to be made, side by side, to make the joint. The hollow chisel method is therefore the more expensive.

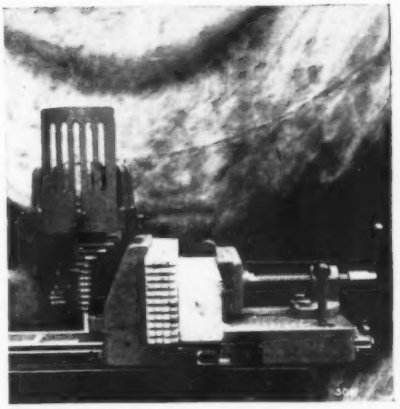


Fig. 65.



Fig. 66.

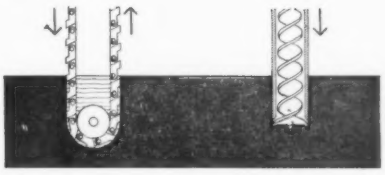


Fig. 67.

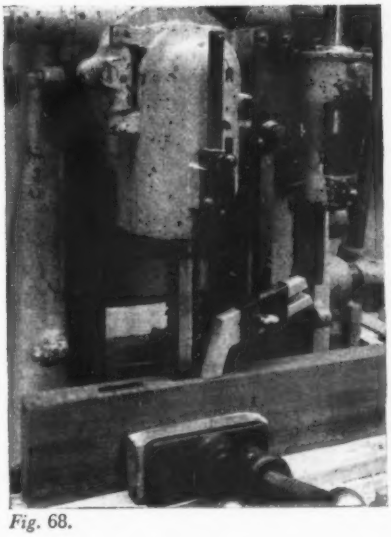


Fig. 68.

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Buildings Illustrated

Meeting Hall; Neighbourhood Centre, Roe Green, Hatfield New Town, Herts, for the Hatfield Development Corporation. (Pages 285-294.) Architects: Lionel Brett and Kenneth Boyd, M.A., F./A.R.I.B.A. Assistants: John Gillespie, A.R.I.B.A., and Newton Watson, A.R.I.B.A. Quantity Surveyors: Davis, Belfield & Everest. General Contractors: C. Miskin & Sons Ltd. Subcontractors: reinforced concrete, Holland & Hannen and Cubitts Ltd.; bricks, Woodside Brick Works, Cement Marketing Co.; tiles, British Art Tile Co.; "Fural" roofings, B. Finch & Co. Ltd.; wood block flooring, The Acme Flooring & Paving Co. Ltd.; roof carcassing, H. Newsum, Sons & Co. Ltd.; central heating, Weatherfoil Heating Systems Ltd.; gas fixtures and fittings, Eastern Gas Board; boilers, Ideal Boilers Ltd.; electric wiring, Eastern Electricity Board; electric light fixtures, Merchant Adventurers Ltd.; door furniture, Lockerbie & Wilkinson Ltd.; casements, West Bromwich Casement & Engineering Co. Ltd.; sanitary fittings, B. Finch & Co. Ltd.; sliding doors, Silent Gliding Doors Ltd.; curtain track, Hunter & Hyland Ltd.; sunblinds, Deans Blinds; metal work, A. E. Cooper & Co.; textiles, Gerald Holtom; magnesite flooring, Modern Tile & Floor Co. Ltd.; shop fitting, Harris & Sheldon Ltd.; signs, Everitt Signs; paint, Tretol Ltd.; exit signs, Morgan Radio Ltd.; doors, Southerns Ltd.

Congregational Church, Stevenage New Town, Hertfordshire. (Pages 295-297.) Architects: Edward D. Mills, F.R.I.B.A., and Oliver Carey, A.R.I.B.A. Quantity Surveyor: Leslie W. Clark, F.I.A.S. General Contractors: William Sindall Ltd. Sub-contractors: windows, James Couper & Co. Ltd.; gas, Eastern Gas Board; electrical work, Dobson Electrical Installations; furnishings, A. H. Jackson; ironmongery, Yannedis & Co. Ltd.; paint, Mander Bros; lighting fittings, Hume Atkins & Co. Ltd.; thermoplastic flooring, Armstrong Cork Co. Ltd.; kitchen fittings, Jayanbee Joinery Ltd.; W.C. partitions, Venesta Limited; joinery and doors, R. Cattle Ltd; shingle roof, W. H. Colt (London) Ltd.; exit sign, E. Coules & Son Ltd.; sanitary fittings, Stitsons Sanitary Fittings Ltd.; fire extinguishers, Mather & Platt Ltd.; dutch facing bricks, R. Y. Ames Ltd.

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Messrs. T. P. Bennett & Son have changed their telephone number to Holborn 9277 (11 lines).

Mr. John Ratcliff, O.B.E., F.R.I.B.A., A.M.T.P.I., has joined Mr. Howard V. Lobb in practice. The name of the firm will remain as Howard V. Lobb & Partners.

Mr. H. Werner Rosenthal, DIP.ING., A.R.I.B.A., has moved his practice to 48, Conduit Street, W.1, telephone number MAYfair 5680 (also Amersham 894). New catalogues, etc., would be welcomed.

Mr. Leonard Fletcher, A.R.I.C.S., Chartered Quantity Surveyor, has resigned his position with Messrs. Vallance and Westwick of Mansfield and Sheffield, and has commenced his own practice at North Church Street, Bakewell, Derbyshire.

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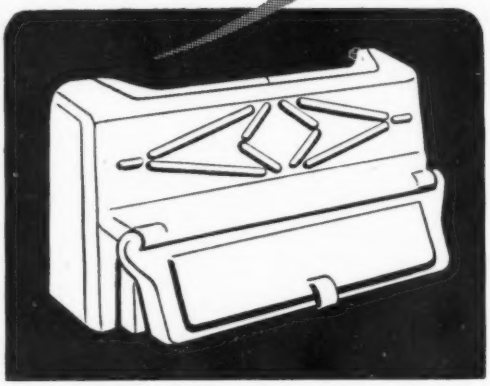


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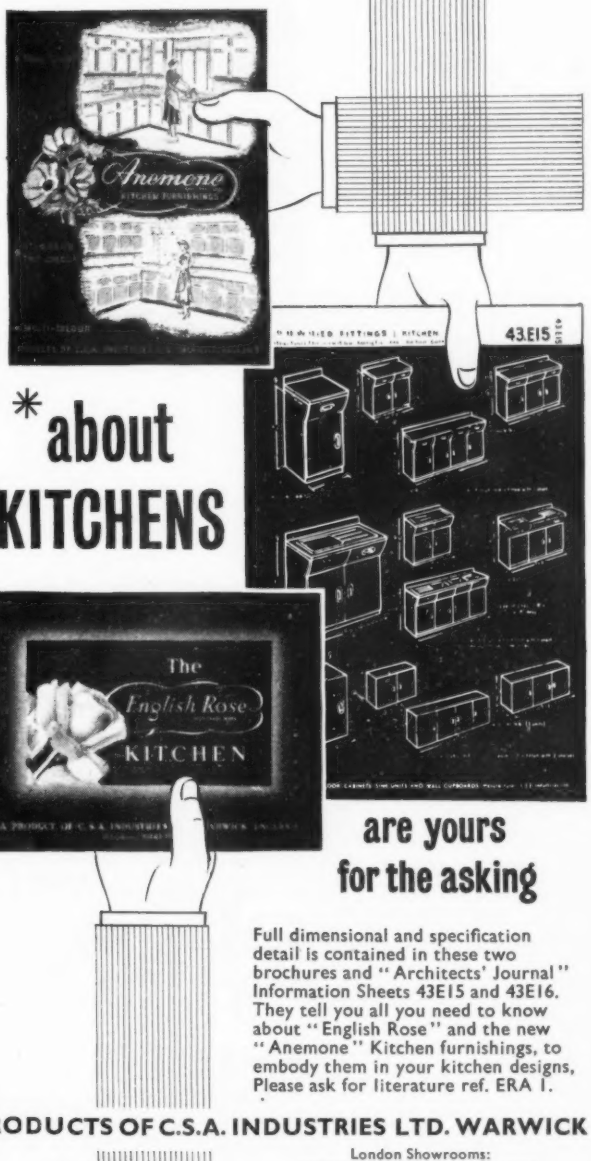
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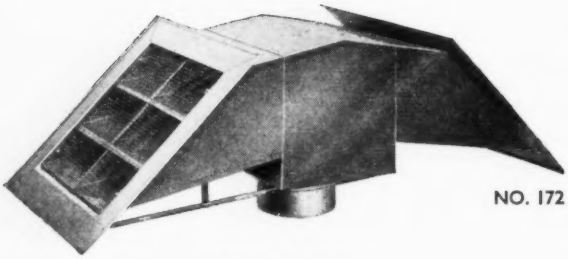
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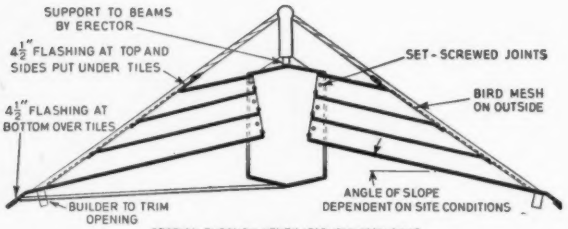


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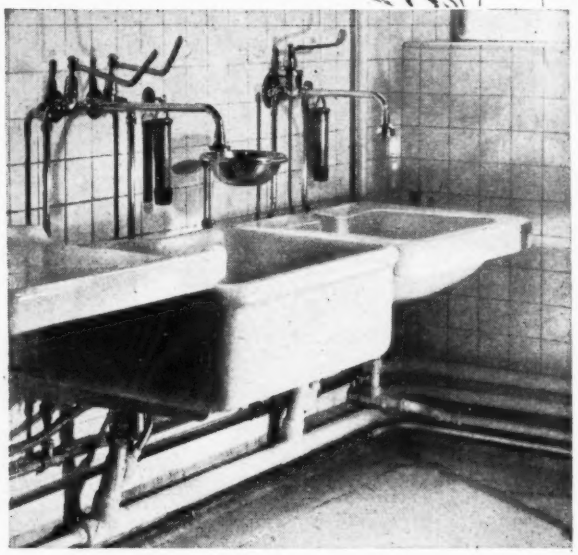
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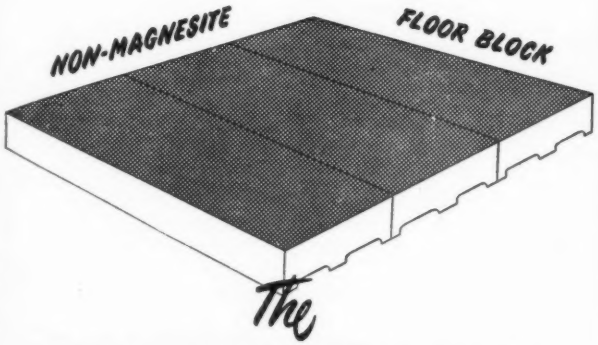
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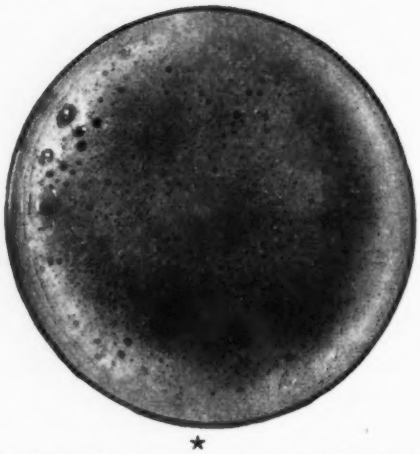
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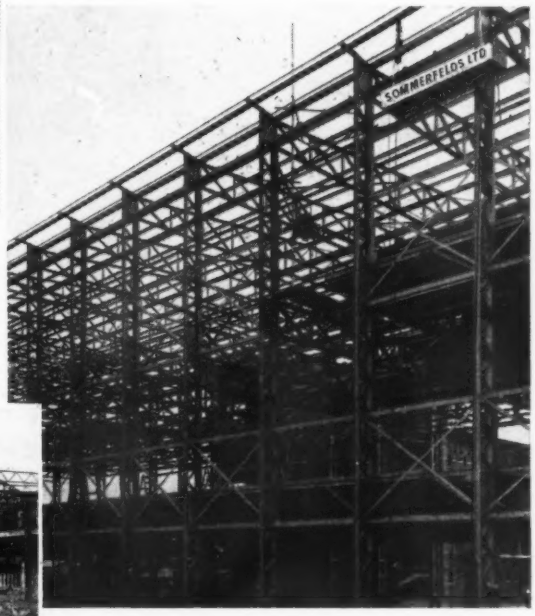
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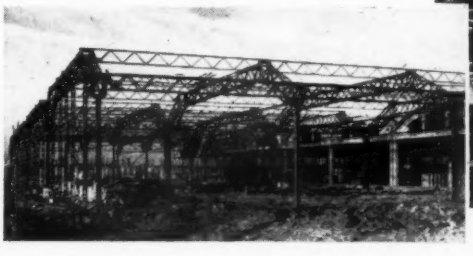
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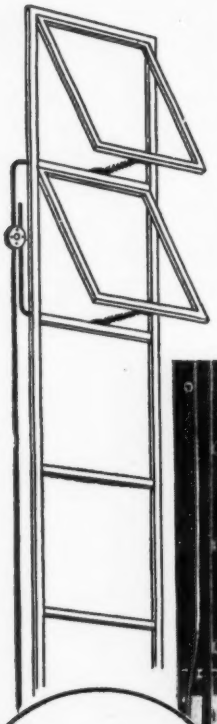


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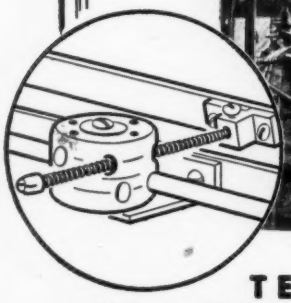


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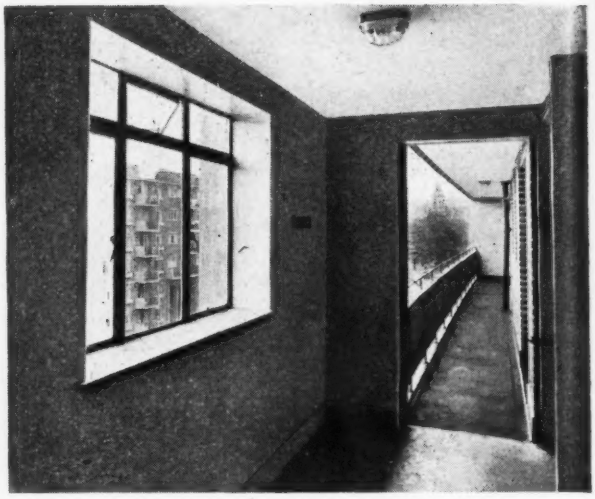
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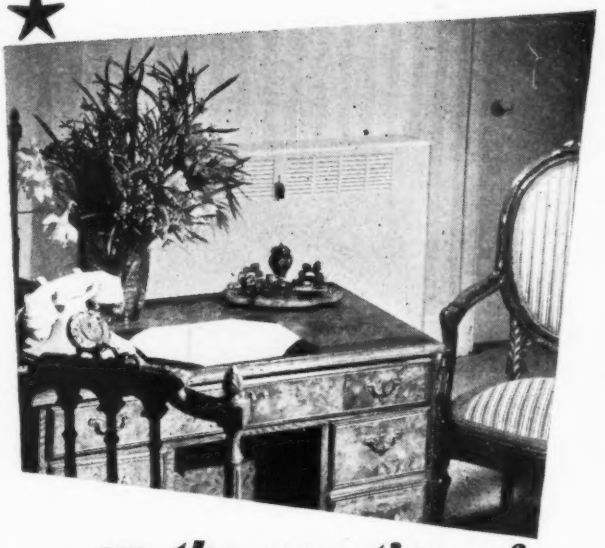
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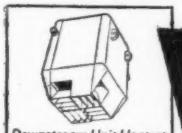
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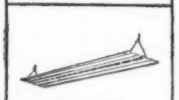


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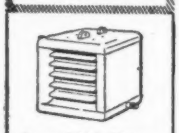
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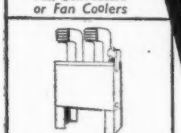
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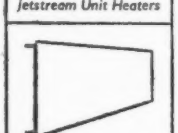
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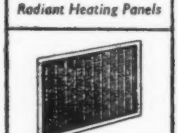
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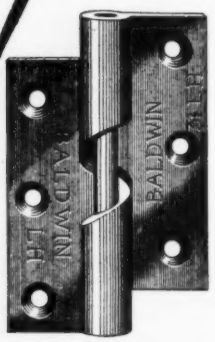
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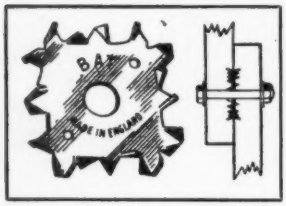
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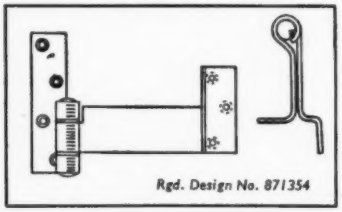
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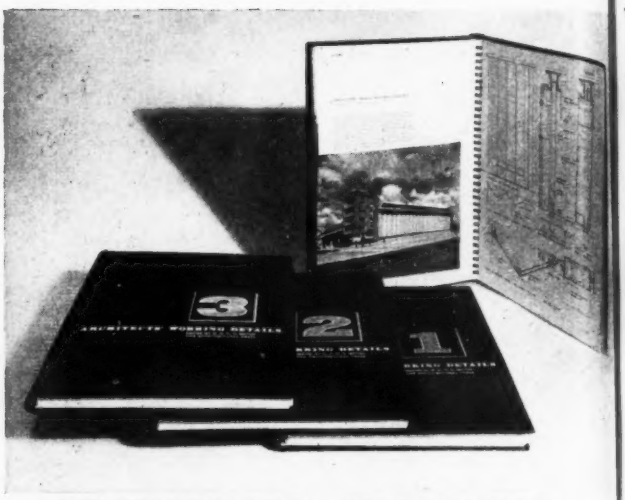
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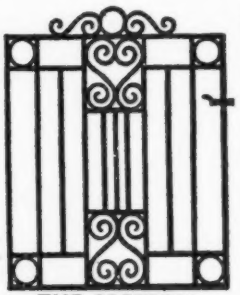
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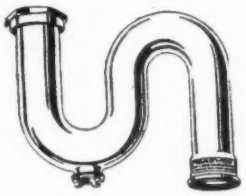
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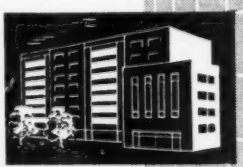
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ASSISTANT QUANTITY SURVEYOR, GRADE A.P.T. IV (£675—£825).

Applications are invited for the above position in the City Engineer's Department.

Applicants should be Associates of the Royal Institution of Chartered Surveyors or have extensive professional experience.

Commencing salary would depend on qualifications and experience. HOUSING ACCOMMODATION may be made available in suitable cases.

Application forms from R. M. Finch, O.B.E., M.I.C.E., City Engineer and Surveyor, Guildhall, Nottingham, returnable by 21st September, 1955. 2606

COUNTY BOROUGH OF SOUTH SHIELDS.
APPOINTMENT OF PROFESSIONAL STAFF.

The Council is proposing to carry out a Development Programme which envisages a variety of major works in both Building and Civil Engineering.

Additional staff is required in the Borough Engineer's Department and applications are invited from suitably qualified persons for the following appointments.

(*a*) TOWN PLANNING SECTION—
One Chief Assistant, £1,108—£1,228 per annum.
One Principal Assistant, £825—£1,000 per annum.

(*b*) ARCHITECTURAL SECTION—
Two Principal Assistants, £825—£1,000 per annum.

(*c*) ENGINEERING SECTION—
Two Principal Assistants, £825—£1,000 per annum.

(*d*) QUANTITY SURVEYING SECTION—
One Principal Assistant, £825—£1,000 per annum.

The appointments are permanent and the Conditions of Service are those as adopted by the National Joint Council for Local Authority Staffs.

Successful candidates will be required to pass a medical examination for superannuation purposes and housing accommodation will be made available if required.

Application forms obtainable from the Borough Engineer, Town Hall, South Shields, should be returned to him not later than 10 a.m. Monday, 19th September, 1955.

R. S. YOUNG,
Town Clerk.
2397

COUNTY BOROUGH OF WEST BROMWICH.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the undermentioned appointments:

PRINCIPAL ASSISTANT ARCHITECT: Salary Grade A.P.T. V (£750—£900).

ASSISTANT ARCHITECTS: Salary Grades A.P.T. II (£560—£640), III (£600—£725) and IV (£675—£825).

TOWN PLANNING ASSISTANTS: Salary Grades A.P.T. II (£560—£640) and IV (£675—£825).

ASSISTANT BUILDING INSPECTOR: Salary Grade A.P.T. II (£560—£640).

N.J.C. Conditions of Service.

Applications, naming two referees and stating appointment applied for, should be sent to Borough Surveyor, Town Hall, West Bromwich, by 10th September, 1955. 2466

COUNTY BOROUGH OF BARNSLEY.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the following appointments:

(*a*) SENIOR ASSISTANT QUANTITY SURVEYOR, A.P.T., Grade IV (£675—£825), commencing salary to be fixed within the grade, according to qualifications and experience.

(*b*) ARCHITECTURAL ASSISTANT, Special Classes, A.P.T. I (£500—£580)—A.P.T. II (£560—£640)—Special Grade (£650—£775), commencing salary to be fixed within the appropriate grade according to qualifications and experience.

Applicants for appointment (*a*) should be suitably qualified and have had considerable experience in preparing Bills of Quantities and settling Contractors' accounts.

For appointment (*b*) applicants should have passed at least the Intermediate R.I.B.A: Examination and previous experience on municipal housing and buildings will be an advantage.

Housing accommodation will be provided if necessary and consideration will be given to the payment of 50% of removal expenses in approved cases.

The appointments will be subject to (*i*) the Scheme of Conditions of Service for A.P.T.C. Staff (*ii*) any other general conditions of employment in operation within the Corporation from time to time (*iii*) one month's notice on either side and (*iv*) to the Local Government Superannuation Acts for which purpose the successful candidates will be required to pass a medical examination.

Applications, stating age, present and previous appointments with dates, qualifications, experience, etc., together with the names of two persons for reference, should reach the Borough Engineer, Town Hall, Barnsley, not later than Wednesday, 14th September, 1955.

Canvassing will disqualify.

A. E. GILFILLAN,
Town Clerk.

Town Hall, Barnsley.
August, 1955. 2423

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies exist for ARCHITECT/PLANNERS (salary up to £783) to deal with Reconstruction Areas. The Council's eight Reconstruction Areas include Stepney-Poplar (the largest Reconstruction Area in the country), South Bank, and the Elephant and Castle. The work includes the preparation of comprehensive three dimension layouts, and covers the whole field of planning technique. The group is advised by a Sociologist, and emphasis is on enthusiasm, teamwork, design ability and administrative efficiency.

Particulars and application form, returnable by 12th October from Architect (AR/EK/TP/2), the County Hall, S.E.1. (1373). 2611

BOROUGH OF KEIGHLEY.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment on the permanent staff of a QUANTITY SURVEYING ASSISTANT, Grade A.P.T. 1, Salary scale £500—£580.

Applicants for the position should possess general quantity surveying experience obtained in the office of a Quantity Surveyor or Architectural Department, and have a sound practical knowledge of measuring and valuation work for interim certificates and final measurement in connection with Housing Contracts.

Applications to be made upon the prescribed form to be obtained from the undersigned, to whom same must be returned, accompanied by copies only of two recent testimonials, not later than first post, Tuesday, 13th September, 1955.

E. G. FELGATE, A.R.I.B.A.,
Borough Architect.

Borough Architect's Department, College Street, Keighley. 2484

LONDON ELECTRICITY BOARD.
STRUCTURAL ASSISTANTS
AND STRUCTURAL DRAUGHTSMEN.

Applications are invited for the above positions in the Construction Branch of the Chief Engineer's Department in Central London.

Applicants for the positions of Structural Assistants in the Civil Engineer's Section should have experience in the design and detailing of either reinforced concrete or steelwork structures. Applicants for the positions of Structural Draughtsmen should have a knowledge of building construction requirements and some experience in detailing reinforced concrete or steel structures.

The posts are graded under Schedule "D", National Joint Board agreement, as Grade 5—£672 to £777 and Grade 6—£535 10s. 0d. to £661 10s. 0d. per annum respectively, inclusive of London Allowance. Commencing salaries will be dependent on qualifications and experience.

Application forms obtainable from Personnel Officer, 46/7, New Broad Street, London, E.C.2, to be returned completed by 2nd September, 1955. Please enclose addressed envelope and quote ref.: V/2003/A. 2422

BOROUGH OF ERITH.
THIRD ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of THIRD ARCHITECTURAL ASSISTANT Grade A.P.T. II £560 × £20—£640 per annum plus London weighting.

Applicants should hold appropriate qualifications.

Applications stating age, qualifications, previous appointments and experience, together with the names and addresses of two referees should be sent to the Borough Engineer & Surveyor, Town Hall, Erith, Kent, not later than Monday the 12th September, 1955.

The Council is unable to assist in the provision of housing accommodation.

J. A. CROMPTON,
Town Clerk.
2414

BOROUGH OF HARROW.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the undermentioned appointment in the Department of the Borough Engineer and Surveyor (Mr. J. H. Melville Richards, A.M.I.C.E., M.I.Mun.E):—

SENIOR ARCHITECTURAL ASSISTANT, A.P.T. Grades III/IV. Salary commencing £650—£825, plus London "Weighting."

Candidates for appointment should have passed Parts I and II of the R.I.B.A. final or special final examination, or equivalent, and to have had at least five years' experience.

The appointment will be subject to the provisions of the Local Government Superannuation Acts, the passing of a medical examination, and the National Joint Council's Scheme of Conditions of Service.

The Council are unable to assist in obtaining housing accommodation for the successful candidate.

Forms of application may be obtained from the undersigned, to whom they should be returned not later than Monday, the 12th September, 1955.

D. H. PRITCHARD,
Town Clerk.

Council Offices, Harrow Weald Lodge, Harrow, Middlesex. 2452

METROPOLITAN BOROUGH OF
SHOREDITCH.
ASSISTANT ARCHITECT.

Applications are invited for the appointment of ASSISTANT ARCHITECT. Salary depending on experience and qualifications. Subject to medical examination, Council's Superannuation Scheme and N.J.C. Conditions.

Applications to Borough Architect, Town Hall, Old Street, E.C.1, stating age, training, experience and salary required and giving two referees to arrive by 12th September, 1955. 2534

POPLAR BOROUGH COUNCIL invite applications for following temporary posts: (*a*) TWO ASSISTANT ARCHITECTS—£800 × £50 to £850. (*b*) ARCHITECTURAL ASSISTANTS—£700 × £50 to £750.

Applicants for post (*a*) should have passed Final R.I.B.A. and post (*b*) Intermediate. Duration of appointment at least 3—4 years in each case. Forms obtainable from Borough Engineer and Surveyor, Poplar Town Hall, Bow Road, E.3. Closing date—19th September, 1955. 2502

METROPOLITAN BOROUGH OF CAMBERWELL.
DEPARTMENT OF DIRECTOR OF HOUSING AND BOROUGH ARCHITECT.
(*a*) ASSISTANT ARCHITECT, A.P.T., III/IV (£630—£855 inclusive of £30 London weighting). Qualification required: A.R.I.B.A. (*b*) JUNIOR ARCHITECT, A.P.T., II (£590—£670 inclusive). Qualification required: R.I.B.A. Intermediate Examination or its equivalent followed by a minimum of one year in an architectural office. Work of department includes design and construction of public buildings, housing estates including multi-storey construction. No housing provided. Application form from Town Clerk, Town Hall, S.E.5. Closing date 14th September, 1955. 2409

CITY OF WINCHESTER.
Applications are invited for the post of ARCHITECTURAL ASSISTANT in the City Engineer's Office. It is essential that the applicant should be a neat and accurate draughtsman and should have had previous experience in an architect's office. Salary will be within Grade II of the National Scales, and the appointment is subject to the Local Government Superannuation Act.
Applications stating age and details of experience, together with the names and addresses of two referees, should be addressed to the undersigned, and reach this office not later than WEDNESDAY, 14th September, 1955. Canvassing, either directly or indirectly, will disqualify.
R. H. McCALL,
Town Clerk.
Guildhall, Winchester.
16th August, 1955. 2438

NATAL PROVINCIAL ADMINISTRATION.
VACANCIES FOR FOUR TOWN PLANNING OFFICERS.
Applications are invited for appointment to the post of TOWN PLANNING OFFICER in the office of the Provincial Town and Regional Planner, at a salary on the scale £540 × £48—£1,020. Commencing salary will be determined according to qualifications and experience. In addition to the above salary, temporary cost of living allowance at the prevailing Public Service rates is payable, amounting at present to £234 for married officers only.
Applicants should have an up-to-date knowledge and preferably some experience of town and regional planning practice, and should be corporate members of the Town Planning Institute, or hold a recognised town planning qualification.
Successful applicants will be reimbursed to cover the personal transport expenses of themselves and their immediate families, incurred in taking up their appointment in Pietermaritzburg, and will be paid at a rate equivalent to their basic salary during the period of the voyage. They will be required to enter into a contract to serve the Administration for a period of either 3 or 5 years on the satisfactory conclusion of which period their return transport expenses will be defrayed. During the period of the contract, officers may be offered a permanent appointment in the South African Public Service.
The Provincial Town and Regional Planner is responsible for:
(*a*) the preparation of regional surveys and plans for both developed and undeveloped regions.
(*b*) the preparation of town planning schemes for the smaller local authorities including detailed layouts for residential and industrial areas.
(*c*) the preparation of reports on town planning schemes submitted for approval by the larger local authorities.
(*d*) investigating all appeals lodged in terms of the Town Planning Ordinance.
(*e*) investigations and research required for the formulation of a planning policy for Natal.
Forms of application and further information on the scope of the work, conditions of employment and living conditions in Pietermaritzburg may be obtained from the Staff Clerk, Room 102, South Africa House, Trafalgar Square, London, W.C.2.
Applicants will be interviewed in London on or about the 3rd October, 1955, by the Provincial Town and Regional Planner.
Application forms must be completed and returned, together with copies of not more than three testimonials, to the above address not later than 21st September, 1955. 2392

BOROUGH OF NELSON.
ARCHITECTURAL ASSISTANT.
Applications are invited for the appointment of ARCHITECTURAL ASSISTANT in the office of the Borough Engineer, at a salary in accordance with A.P.T. Grade II of the National Scales of Salaries (£560—£640 per annum).
The applicants must be Students of the R.I.B.A., and should have experience in housing design, supervision, surveys, specifications and general work.
Applications, giving details of experience and qualifications, accompanied by the names and addresses of three referees, to be sent to the undersigned not later than Wednesday, the 14th September, 1955.
F. W. ROBERTS,
Town Clerk.
Town Hall,
Nelson.
23rd August, 1955. 2543

EAST ANGLIAN REGIONAL HOSPITAL BOARD.
Department of the Regional Architect (Guy Aldis, A.R.I.B.A., A.A.Dipl.) for planning of a scheme for the major development of a General Hospital which the Board is about to undertake.
(1) ASSISTANT ARCHITECTS—Candidates must be qualified and registered architects and possess good general experience in design, construction and specification writing. Knowledge of hospital work desirable. Salary £640—£930 per annum.
(2) SENIOR ASSISTANT ENGINEER (Mechanical)—Candidates to be experienced in design and installation of heating, ventilating, steam boiler plant and services, etc., and must be A.M.I.Mech.E., or equivalent. Salary £920—£1,095 per annum.
(3) ASSISTANT ENGINEER (Mechanical)—Candidates to be experienced in the work at (2) and should be A.M.I.H.V.E. or Graduate Members of the I.H.V.E., or equivalent. Salary £640—£930 per annum.
(4) ASSISTANT ENGINEER (Electrical)—Candidates to be experienced in design and installation of electrical engineering services and should be A.M.I.E.E., or Graduate Members of I.E.E., or equivalent. Salary £640—£930 per annum.
(5) ENGINEERING ASSISTANTS—Candidates to be experienced in work described above and possess Ordinary National Certificate (Mechanical or Electrical). Salary £480 (at age 21 or over)—£670 per annum.
(6) DRAUGHTSMEN (Engineering)—Candidates to have had suitable training and experience. Salary £390 (at age 21 or over)—£580 per annum.
Additional increments within the scale based on experience and age may be granted in respect of posts (1), (3) and (4). Commencing salary for post (5) may be fixed at point above minimum but will not exceed £560 per annum.
Applications indicating appropriate post and stating age, qualifications, experience and details of present position with names of three referees to Secretary of Board, 117, Chesterton Road, Cambridge, by 9th September, 1955. 2472

HERTFORDSHIRE COUNTY PLANNING DEPARTMENT.
Applications invited for post of PLANNING ASSISTANT, Salary £675—£900 (A.P.T. IV—V).
Position is next to the Chief Assistant in charge of the Department's Development Control Section. Experience in this class of work essential. Must be Associate Member Town Planning Institute or possess equivalent qualifications in Surveying or Municipal Engineering.
Forms on application to County Planning Officer, County Hall, Hertford. Closing date 17th September, 1955. 2500

ANGLESEY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
Applications are invited for the following post in the above Department:—
ASSISTANT ARCHITECT GRADE A.P.T. III (£625—£725). Preference will be given to Associate Members fo the Royal Institute of British Architects with good general experience in design and construction.
The post is superannuable and candidates will be required to undergo a medical examination.
Further particulars may be obtained from the County Architect, Shire Hall, Llangefni, Anglesey.
Applications giving names and addresses of two referees to be forwarded to the Clerk of the County Council, Shire Hall, Llangefni, by 12th September, 1955. 2509

BIRMINGHAM REGIONAL HOSPITAL BOARD.
ARCHITECTURAL STAFF APPOINTMENTS.
(*Donald A. Goldfinch*, E.R.D., F.R.I.B.A., Dip. T.P.—*Architect to the Board.*)
(*a*) SENIOR ASSISTANT ENGINEER (heating and ventilation), £920 × £30 (5) × £25 (1)—£1,095. Duties include design, preparation of plans, specifications and technical reports; supervision of new installations of heating and ventilation, boiler house plants and other hospital services. A.M.I. Mech. E., essential, A.M.I.H. and V.E. desirable.
(*b*) ASSISTANT ARCHITECTS (2) £640 × £25 (4) × £30 (4) × £35 (2)—£930, according to age and experience. Applicants must be registered architects, having passed requisite examinations. Experience of hospital planning and construction an advantage. Sound knowledge specifications essential.
(*c*) ASSISTANT QUANTITY SURVEYORS (2) —£640 × £25 (4) × £30 (4) × £35 (2)—£930. Final R.I.C.S. or I.Q.S. or I.A.A.S. and experience in taking off and preparing bills of quantities and settling final accounts essential.
(*d*) ASSISTANT ENGINEERS (2)—£640 × £25 (4) × £30 (4) × £35 (2)—£930 according to age and experience. A.M.I.H.V.E. desirable.
(*e*) ARCHITECTURAL ASSISTANTS (2) (required for large new hospital project) £480 × £20 (7) × £25 (2)—£670. Point of entry according to experience—maximum £560. Inter-R.I.B.A. essential.
(*f*) JUNIORS (two architectural, one engineering) Male (aged 16) maximum £400 (aged 25) Female £165 (aged 16) maximum £330 (aged 25) (salary under revision, equal pay to be implemented). Successful candidates expected to study for professional examinations.
All appointments superannuable. Apply, naming three referees to Secretary, 10 Augustus Road, Birmingham 15, by 11th September, 1955. 2511

LEEDS REGIONAL HOSPITAL BOARD.
Applications are invited for the following appointments on the Board's Headquarters staff, for work in connection with the design and erection of a new general hospital at Huddersfield.
ONE SENIOR ASSISTANT ARCHITECT
Salary £920 × £30 (5) × £25 (1)—£1,095 per annum.
Applicants must be Registered Architects with Final R.I.B.A., or Diploma in Architecture. Experience in hospital planning an advantage and ability to produce good contemporary architecture essential. The applicant selected will be responsible directly to the Regional Architect (P. B. Nash, A.R.I.B.A.) for the control of the section of the Architectural staff engaged on the new project.
ONE ASSISTANT ARCHITECT
Salary £640 × £25 (4) × £30 (4) × £35 (2)—£930 per annum.
Applicants must be Registered Architects with Final R.I.B.A., or Diploma in Architecture. Commencing salary dependent upon practical experience at full professional standard, but the number of additional increments will not be more than the number of years by which the applicant's age exceeds 25. Experience in hospital planning an advantage.
ONE TEMPORARY ARCHITECTURAL ASSISTANT.
Salary £480 × £20 (7) × £25 (2)—£670 per annum.
Applicants must have passed Intermediate examination of the R.I.B.A. Commencing salary dependent upon applicant's age and amount of experience since passing Intermediate examination, but will not exceed £560 per annum. Applicant must have had a sound architectural training and some practical experience in a Practising Architect's office is essential.
Applications giving all relevant particulars, including age, experience, war service, if any, and the names of two referees, should be forwarded to the Deputy Secretary, Park Parade, Harrogate, not later than 10th September, 1955. 2540

POPLAR BOROUGH COUNCIL invite applications from suitably qualified persons for permanent post of ARCHITECTURAL ASSISTANT, A.P.T. III (£600—£725, plus London "weighting"). Forms obtainable from Borough Engineer and Surveyor, Poplar Town Hall, Bow Road, E.3. Closing date—19th September, 1955. 2537

BOROUGH OF DAGENHAM.
ARCHITECTURAL ASSISTANT—GRADE A.P.T. IV.
Applications are invited for the appointment of ARCHITECTURAL ASSISTANT Grade A.P.T. IV. Salary £675 to £825 per annum plus London Weighting, (*e.g.*, £30 per annum at age 26 and over).
Applicants must be Registered Architects and hold A.R.I.B.A. or similar qualification. Experience in housing or educational work an advantage.
Form of application, together with further details of the post, obtainable from the Borough Engineer & Surveyor. Closing date 17th September, 1955. Housing accommodation may be made available.
KEITH LAUDER,
Town Clerk.
Civic Centre,
Dagenham. 2530

GOVERNMENT OF QATAR—PERSIAN GULF.
Applications are invited for the post of Clerk of Works in the Civil Engineering Department.
Preference will be given to candidates fully experienced in the supervision of building works. The successful applicant may also be required to supervise major road and airfield works both by contract and direct labour or to control a maintenance organisation.
Age limit: 30—45 years. Salary: Rupees 1,700 × 75—2,000 per Arabic month. (Approximately £1,530 to £1,800 per annum.) Starting rate in accordance with experience and qualifications.
Period of contract—Two years.
Free furnished bachelor accommodation, water, fuel and light on first appointment. Married accommodation provided after six months' service in Qatar.
Leave earned at the rate of six days for each month of service.
Free first class air passages on appointment and on leave and termination of service, for Official and family.
Free medical treatment.
Appointment is subject to a medical examination.
Applications should be addressed to: THE STATE ENGINEER, GOVERNMENT OF QATAR, DOHA, QATAR, PERSIAN GULF, so as to reach Doha on or before the 15th of September, 1955. Copies to C. TENNANT, SONS & CO. LTD., 4, Copthall Ave., London, E.C.2. 2528

COUNTY COUNCIL OF ESSEX.
Required on the established staff:—
SENIOR ASSISTANT ARCHITECT, Grade V A.P.T.D., salary not exceeding £900, in a small liaison group dealing with work of private architects. Duties largely administrative—to interview and discuss proposals with leading private architects, and to have consultations with officers of Ministries and other departments of County Council. Candidates must be members of R.I.B.A.
Commencing salary according to experience and qualifications.
Application forms from H. Conolly, F.R.I.B.A., County Architect, County Hall, Chelmsford, to be returned with copies of three testimonials by 15th September, 1955.
Canvassing disqualifies. 2510

COUNTY BOROUGH OF MERTHYR TYDFIL.
BOROUGH ENGINEER, SURVEYOR AND TOWN PLANNING DEPARTMENT.

(*a*) PERMANENT ENGINEERING ASSISTANT, A.P.T. Grade IV—£675—£825.

(*b*) ARCHITECTURAL ASSISTANT, A.P.T. Grade IV—£675—£825.

(*c*) JUNIOR PLANNING ASSISTANT within A.P.T. Grade I—£500—£580.

Applications are invited for the above appointments. A house will be provided, if required, for appointments (*a*) and (*b*).

Applicants for appointment (*a*) must be Corporate Members of a Chartered Institution and should have had good all-round municipal engineering experience. Planning experience would be an advantage.

Applicants for appointment (*b*) should be Associate Members of the Royal Institute of British Architects, and must have had good all-round experience of architectural work usually undertaken by a local authority. Planning experience would be an advantage.

Applicants for appointment (*c*) should have had experience in a Planning Office, and preference will be given to those who have passed parts of the Intermediate Examination of the Town Planning Institute.

The appointments are subject to the provisions of the local Government Superannuation Acts, and to the passing of a medical examination. They are terminable by one month's notice on either side.

Applications stating age, past and present appointments, qualifications and experience, together with copies of three recent testimonials, should be delivered to the undersigned not later than Tuesday, the 20th September, 1955.

Canvassing in any form will disqualify.

T. S. EVANS,
Town Clerk.

Town Hall,
Merthyr Tydfil.
23rd August, 1955. 2545

RICHMOND (SURREY) BOROUGH COUNCIL.

Applications are invited for the following appointments in the Borough Engineer's Department :—

(*a*) ASSISTANT ARCHITECT (Temporary) Special Scale, £650—£775.

(*b*) ARCHITECTURAL DRAUGHTSMAN (Temporary), A.P.T. Grade I, £500—£580.

London Weighting payable in addition to above grades.

The work will be on housing, including multi-storey flats and public buildings.

Applications naming two referees, to be delivered to the Borough Engineer and Surveyor, Hotham House, Heron Court, Richmond, Surrey, by 19th September, 1955.

Canvassing will disqualify. Relationship, if any, to Members of the Council or Senior Officers, must be stated. No assistance with housing. 2552

THURROCK U.D.C.
(ENGINEER & SURVEYOR'S DEPARTMENT)

require QUANTITY SURVEYOR. Salary—A.P.T. IV of N.J.C. scales, *i.e.*, £675—£825 p.a. Appointment pensionable Applicants must be thoroughly experienced in taking off, abstracting and billing of quantities, measurement of work in progress and dealing with final accounts in connection with general building work.

Housing accommodation, if necessary, may be provided if successful candidate resides more than 20 miles from Thurrock.

Applications stating age, qualifications and experience, and quoting three references, to Clerk of the Council, Council Offices, Whitehall Lane, Grays, Essex, by 13th September, 1955. Canvassing disqualifies. Relationship with any member or senior officer of the Council must be disclosed. 2536

BOROUGH OF WEMBLEY.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.
APPOINTMENT OF (*a*) ARCHITECTURAL ASSISTANT; (*b*) ASSISTANT ARCHITECT.

Applications are invited from suitably qualified persons for the above appointments. Salaries : appointment (*a*) £500 × £20—£580 p.a., or £560 × £20—£640 p.a., and (*b*) £650 × £25—£775 p.a., London "Weighting" Allowance is payable in addition. Commencing salary according to qualifications and experience. Applications, disclosing any relationship to a Member or Senior Officer of the Council, giving the names and addresses of three referees and quoting reference "A" must reach the Borough Engineer and Surveyor, Town Hall, Wembley, by 7th September, 1955. Canvassing disqualifies. Housing accommodation not provided. 2522

BOROUGH OF WALTHAMSTOW.
ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment in the Borough Architect, Engineer & Surveyor's Department (F. G. Southgate, A.R.I.B.A., M.I.Mun.E., A.M.T.P.I., Borough Architect, Engineer & Surveyor) on Grade I/II A.P.T. Division (£530—£670, inclusive of London Weighting) commencing salary according to qualifications and experience.

Application, with names of two persons for reference, should be received by the undersigned not later than noon on Friday, the 9th September, 1955, endorsed "Architectural Assistant."

G. A. BLAKELEY,
Town Clerk.

Town Hall,
Walthamstow, E.17. 2609

ARCHITECTURAL ASSISTANTS required by the GOVERNMENT OF UGANDA for one tour of 30—36 months in the first instance with provident fund benefits. Salary scale (including pay inducement and cost of living allowance), £772 rising to £1,280 a year. Commencing salary according to experience. Free passages. Liberal leave on full salary. Outfit allowance £30. Local Government Superannuation rights can be preserved. Candidates, of good education, must be rapid and accurate architectural draughtsmen with considerable experience in the preparation of working drawings of buildings generally. They must have a sound knowledge of building construction and be capable of carrying out calculations for simple reinforced concrete structures. Experience in the use of levelling-instruments is essential. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2B/40421/AE. 2523

STAFFORDSHIRE COUNTY COUNCIL
EDUCATION ARCHITECT'S DEPARTMENT

ARCHITECTS:

Applications are invited for qualified ARCHITECTS, preferably with experience in education, on Grades A.P.T. V (£750—£900 per annum); A.P.T. IV (£675—£825); A.P.T. III (£600—£725); A.P.T. II (£560—£640).

HEATING ENGINEERS:

Applications are invited from qualified HEATING ENGINEERS, preferably with experience in educational work, on Grades A.P.T. IV (£675—£825); A.P.T. III (£600—£725); A.P.T. II (£560—£640).

ELECTRICAL ENGINEER:

Applications are invited from qualified ELECTRICAL ENGINEERS, on Grade A.P.T. III (£600—£725).

QUANTITY SURVEYORS:

Applications are invited from qualified QUANTITY SURVEYORS, on Grades A.P.T. VI (£825—£1,000); A.P.T. V (£750—£900); Inter. Standard—A.P.T. III (£600—£725).

Form of Application obtained from The County Education Architect, Green Hall, Lichfield Road, Stafford, and to be completed and returned within ten days from date of advertisement.

T. H. EVANS,
Clerk of the County Council.
2610

COUNTY BOROUGH OF GREAT YARMOUTH
APPOINTMENT OF TWO SENIOR ASSISTANT ARCHITECTS

Applications are invited for the above appointments in the Borough Engineer's Department at a salary in A.P.T. Grade V (£750—£900). Applicants should be A.R.I.B.A. with wide administrative experience in the handling of large contracts appropriate to a senior post.

HOUSING ACCOMMODATION WILL BE AVAILABLE

Forms of Application giving details of salary and conditions of appointment may be obtained from the Borough Engineer, Town Hall, and should be returned to me in an envelope endorsed "Senior Assistant Architect" by not later than the 5th September, 1955.

FARRA CONWAY,
Town Clerk.

Town Hall, Great Yarmouth.
25th August, 1955. 2604

CITY OF LEEDS
CITY ENGINEER'S DEPARTMENT

Applications are invited for the appointment of a SENIOR PLANNING ASSISTANT (Redevelopment) Grade A.P.T. VI (£825—£1,000).

Candidates must be Corporate Members of the Town Planning Institute and have had experience in the design and layout of industrial re-development areas, etc., and administration of the Control of Advertisements Regulations. Preference will be given to candidates who have architectural qualifications and experience.

The successful candidate will be required to pass a medical examination.

Applications on the forms provided, which are obtainable from the undersigned, must be delivered not later than September 9th, 1955, accompanied by copies of not more than three testimonials.

Canvassing in any form, either directly or indirectly, will be a disqualification.

D. CURRIE, M.I.C.E.,
City Engineer.

Civic Hall, Leeds, 1. 2605

NEWCASTLE REGIONAL HOSPITAL BOARD
ARCHITECTURAL STAFF APPOINTMENTS
(Philip H. Knighton, M.B.E., A.R.I.B.A., Regional Architect)

In connection with a large new hospital project, the Board invites applications for the following permanent (superannuable) appointments on the Headquarter's Staff of the Regional Architect in Newcastle.

(*a*) ASSISTANT ARCHITECT, Grade £640 × £25(4) × £30 (4) × £35(2) to £930 per annum.

(*b*) ARCHITECTURAL ASSISTANT, Grade £480 × £20(7) × £25(2) to £670 per annum.

(*c*) ARCHITECTURAL DRAUGHTSMAN, Grade £390 × £20 (2) × £25 (6) to £580 per annum.

Commencing salary will depend upon the applicant's age and amount of practical experience.

Applications stating age, qualifications, past and present appointments, present salary and details of experience and training, together with the names of three referees (of whom at least two should be architects) should be forwarded to the Secretary, Newcastle Regional Hospital Board, Walker Gate Hospital, Benfield Road, Newcastle-upon-Tyne, 6, not later than 16th September, 1955. 2601

BATH CITY COUNCIL
CITY PLANNING & ARCHITECT'S DEPARTMENT, BATH CORPORATION

Applications are invited for the position of JUNIOR ARCHITECTURAL ASSISTANT at a salary in accordance with the revised Grade A.P.T. I (£500—£580 p.a.). Candidates are required to have attended a full-time course of architecture and to have passed the R.I.B.A. intermediate examination or its equivalent. The appointment is subject to the Scheme of Conditions of Service for the National Joint Council for Local Authorities' Administrative, Technical and Clerical Services and the Local Government Superannuation Acts, 1937-1953. The successful candidate will be required to pass a medical examination.

Applications giving details of age, experience and qualifications together with copies of not more than three testimonials, should be addressed to the City Planning Officer and Architect, 7, North Parade Buildings, Bath. The last day for the receipt of applications is Monday, the 19th September, 1955.

JARED E. DIXON,
Town Clerk.

Guildhall, Bath. 2595

SALOP COUNTY ARCHITECT'S DEPARTMENT

Applications are invited from SENIOR ARCHITECTS who have experience and are interested in contemporary architecture, for which the Council's programme offers considerable scope in a great variety of buildings.

Salary £750 to £900 per annum for qualified applicants.

Monthly rail fare and subsistence allowance not exceeding 30s. a week for a period of six months will be paid to married architects temporarily separated from their families.

Forms of application can be obtained from the County Architect, Column House, London Road, Shrewsbury, to whom they must be returned not later than 24th September, 1955. 2599

COUNTY BOROUGH OF OLDHAM
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited from suitably qualified persons for the appointment of an ARCHITECTURAL ASSISTANT at a salary in accordance with the Special Grade (£650—£775).

The appointment is subject to the Superannuation Acts and to the passing of a Medical Examination.

HOUSING ACCOMMODATION will be provided if necessary.

Applications giving names of two persons to whom reference may be made, are to be received by me not later than Monday, the 19th September, 1955.

A. L. HOBSON,
Borough Engineer & Surveyor.

75, Union Street, Oldham. 2557

H.M. PRISON COMMISSION have vacancies for at least three temporary ARCHITECTURAL DRAUGHTSMEN Male or Female, and one temporary ENGINEERING DRAUGHTSMAN Male or Female. Salary (Men) £442 10s. at age 21 rising to £605 at age 28, then to £695; (Women) £442 10s. at age 21 rising to £592 at age 28, then to £626. Starting pay according to age up to 28 and then according to age and qualifications. The Women's scale is subject to the scheme for the introduction of equal pay into the non-industrial Civil Service.

Hours of duty,44 plus overtime. Annual leave 24 working days rising to 28 working days after three years plus 9 days public and privilege holidays. Candidates for the former posts must have had a recognized training with a good general knowledge of construction and surveys. Candidates for the latter post should preferably have obtained educational training up to the ordinary National Certificate in Mechanical or Electrical engineering course standard, or the equivalent in Heating and Ventilating Course.

Regulations and application forms from the Establishment Officer (E.126/2/20), Prison Commission, Horseferry House, Dean Ryle Street, London, S.W.1, to be returned by 26th September, 1955. 2593

HISTORIC BUILDINGS AND ANCIENT MONUMENTS.

ARCHITECTURAL ASSISTANT required by Ministry of Works in Edinburgh for specialist work on Historic Buildings and Ancient Monuments, including preparation of reports, measured drawings and detailing of repairs and preservation work. Previous experience not necessary, but good draughtsmanship and some architectural training essential.

Salary £453 to £710, commencing salary according to age and experience.

Applications to Establishment Officer, 122, George Street, Edinburgh. 2516

PERTH AND KINROSS JOINT COUNTY COUNCIL require an ASSISTANT ARCHITECT in their County Architect's Department. At present the work is in connection with school improvements but the person appointed may be transferred subsequently to other work. Salary A.P.T. IV, £615 rising to £660 per annum with placing according to experience and qualifications. A house may be made available, if required. Further particulars may be obtained from the County Clerk, County Offices, York Place, Perth, with whom applications on the prescribed form should be lodged as soon as possible. 2496

URBAN DISTRICT OF EBBW VALE.
ARCHITECT'S DEPARTMENT.
Appointment of ARCHITECTURAL ASSISTANT, Grade II, £560—£640. Applicants to be Inter R.I.B.A. or Inter R.I.C.S. Further details and Form of Application from Clerk to the Council, Council Offices, The Walk, Ebbw Vale. 2407

F.A.S.
FORTHCOMING EXAMINATIONS.
The Faculty of Architects and Surveyors will be holding professional examinations from 14th to 18th November, 1955 (inclusive) in all sections.
The examinations will be held in London and certain provincial centres. Applications from candidates for permission to sit must be with the Secretary not later than Monday, 3rd October, 1955.
All information obtainable from the Secretary, F.A.S., 68, Gloucester Place, London, W.1 (Welbeck 9966). 2547

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, SCOTLAND.
SENIOR ASSISTANT ARCHITECT.
Applications are invited for the appointment of a SENIOR ASSISTANT ARCHITECT in the Regional Architect's Division on a salary scale of £920 × £30 (5) × £25 (1)—£1,095.
This post is superannuable and applications stating age, present position and salary, qualifications and experience, together with the names of two persons to whom reference can be made, should reach the undersigned within seven days of this advertisement.
J. HOLT, F.R.I.B.A.,
Regional Architect.
8, Drumsheugh Gardens,
Edinburgh, 3. 2520

MIDLANDS ELECTRICITY BOARD.
ARCHITECTURAL ASSISTANTS required in the Architectural and Constructional Section of the Engineer's Department of the Birmingham and District Sub-Area.
Applicants should be capable of assisting in the preparation of working drawings and in the design of Offices, Depots, Service Centres and Substations.
Salary within the range of £510—£630 or £640—£740 per annum (N.J.B. Schedule "D" Grades 6 or 5) according to qualifications and experience. Superannuable.
Apply in writing, within fourteen days, stating age, experience, present salary and position to Emil Braathen, Sub-Area Manager, Midlands Electricity Board, 14, Dale End, Birmingham, 4.
A. STEPHENS,
Secretary. 2607

METROPOLITAN BOROUGH OF STOKE NEWINGTON.
Vacancy for ARCHITECTURAL ASSISTANT on permanent staff of the Borough Engineer and Surveyor. A.P.T. III (£600 × £25—£725), plus London Weighting. Step on grade according to qualifications and experience. N.J.C. Conditions. Medical Examination. Leave one Saturday in three, canteen facilities.
Application forms obtainable from the Town Clerk, Town Hall, Stoke Newington Church Street, N.16, to whom they should be returned by Monday, 26th September, 1955. 2608

COUNTY BOROUGH OF DUDLEY.
APPOINTMENT OF CHIEF ASSISTANT ARCHITECT.
Applications are invited for the appointment of CHIEF ASSISTANT ARCHITECT on Grade VI, £825 by £35 to £1,000, the commencing salary to be fixed according to experience.
The person appointed will be directly responsible to the Borough Architect. There is no deputy on the establishment.
National Joint Council Conditions of Service apply. The successful applicant will be required to pass a Medical Examination.
Applications, together with the names of two referees, to reach me not later than Friday, the 9th September, 1955.
P. D. WADSWORTH.
Town Clerk.
The Council House, Dudley.
16th August, 1955. 2494

BOROUGH OF TAMWORTH
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT
Applications are invited for the following appointments:—
(*a*) Two ENGINEERING ASSISTANTS.
(*b*) One ARCHITECTURAL ASSISTANT.
Salaries for these appointments will be within the special N.J.C. salary grades for Engineering and Architectural Assistants, according to qualifications and experience.
Housing accommodation available if required.
Applications stating age, qualifications and experience, together with names of two referees should reach the undersigned by first post Monday, 12th September, 1955.
HENRY WOOD.
Town Clerk.
Municipal Offices, Tamworth. 2553

LANCASHIRE COUNTY COUNCIL
PLANNING ASSISTANT (ARCHITECTURAL), £650—£825, required at LANCASTER. Applicants should possess a qualification in architecture; planning experience desirable but not essential. Salary according to qualifications and experience. Applications, giving age, qualifications, present appointment, experience, etc., and two referees to the County Planning Officer, East Cliff County Offices, Preston, by 14th September, 1955. 2600

Applications are invited for the appointment of ARCHITECTURAL ASSISTANTS of Intermediate standard for interesting and varied work in pleasant office. Generous leave. Salary £450. Apply for further particulars, stating age, experience, and training, to the Surveyor to the University, 5 South Parks Road, Oxford. 2598

LANCASHIRE COUNTY COUNCIL.
There is a vacancy for a SENIOR ASSISTANT ARCHITECT requiring new experience on School building. Salary Scale £750—£900. Application forms from the County Architect, P.O. Box 26, County Hall, Preston, to be returned by Monday, 12th September, 1955, quoting Ref. A/AJ. 2412

BOROUGH OF REDCAR.
APPOINTMENT OF ARCHITECTURAL ASSISTANT, GRADE II.
Applications are invited for the above appointment on the staff of the Borough Engineer.
Applicants must have had a good general experience and be qualified in accordance with the N.J.C. Conditions of Service.
Application forms may be obtained from the undersigned to whom they must be returned, not later than Monday, 12th September, 1955.
The provision of housing will be considered, if necessary.
Canvassing will disqualify.
HUGH CALDWELL,
Town Clerk.
Municipal Buildings, Redcar. 2451

METROPOLITAN BOROUGH OF HAMPSTEAD.
Applications are invited for a TEMPORARY ASSISTANT ARCHITECT, A.P.T. IV (£675 to £825, plus London Weighting). The successful candidate will be a member of a team engaged on housing and flat schemes and gain valuable experience both in an Architect's office and on the site. Applications to the Town Clerk, Town Hall, Haverstock Hill, N.W.3, with the names of three referees, by 12th September, 1955. 2470

AIR MINISTRY Works Designs Branch require in London and Provinces (with liability for overseas service) ARCHITECTURAL ASSISTANTS experienced in planning/preparation of working drawings and details for permanent and semi-permanent buildings. Salaries up to £810 p.a. (men) and £706 (women). Starting pay based on age, qualifications, and experience. Paid overtime. Posts non-pensionable with long term possibilities. Natural born British subjects only. Write stating age, qualifications, employment details, including type of work done, to any Employment Exchange, quoting Order No. BOROUGH 2303. 2163

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.
Vacancies for ARCHITECTS Grade III (up to £945), and ARCHITECTURAL ASSISTANTS (up to £783), for widespread construction programme which includes houses, blocks of flats, schools of all types, and various public and industrial buildings. Application forms and particulars from Architect (AR/EK/A/2), The County Hall, S.E.1. (1189) 2136

Architectural Appointments Vacant

4 lines or under, 7s. 6d.; each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

ASSISTANT required in busy practice in West End, in early twenties, about Intermediate R.I.B.A. standard. Excellent opportunities for gaining all round experience. Box 1942.

RAMSEY, MURRAY & WHITE have a vacancy for ARCHITECTURAL ASSISTANT, about Intermediate standard, preferably with office experience. Salary according to qualifications. Apply 32, Wigmore Street, London, W.1, or telephone WELbeck 1409. 9823

WESTWOOD, SONS & HARRISON, F./F.R.I.B.A., urgently require a SENIOR ARCHITECTURAL ASSISTANT, A.R.I.B.A. standard, with office experience; also JUNIOR ASSISTANT. Apply in writing, giving qualifications, to 46, Baker Street, W.1. 1958

ARCHITECTURAL ASSISTANT required by Major Oil Company undergoing expansion, for its Sheffield office. Applicants should be of Intermediate standard, and must be capable of carrying out work on the design and re-modelling of service stations. Social Club, Pension and Life Assurance scheme, generous sickness benefits. Write, giving full details of experience, age and salary required, to Box 9262, quoting Ref. A.A. 588.

RONALD WARD & PARTNERS require several capable ARCHITECTURAL ASSISTANTS, with contemporary outlook and willing to use own initiative. Salary range £400 to £800. Interesting and varied work, home and abroad. Congenial working conditions. Apply 29, Chesham Place, Belgrave Square, S.W.1. Telephone: Belgravia 3361. 2135

ARCHITECTS require SENIOR ASSISTANT. Commencing salary £700—£800 with permanency and good prospects offered to capable applicant—S. J. Stephenson, Gillis & Partners, 2, Saville Chambers, North Street, Newcastle-on-Tyne. 2372

WANTED—Capable Intermediate standard ASSISTANT in City Office, varied practice, congenial working conditions. Please phone Avenue 5629 or 4430 for appointment. 2390

ARCHITECTURAL ASSISTANT (Intermediate standard) required at once for varied practice in City office. Write, stating age, experience, and salary required, to Henry C. Smart & Partners, L.R.I.B.A., 120, Moorgate, E.C.2. 1611

JUNIOR ASSISTANT required by Industrial Design organization to work with architect and designers on varied projects. Must be experienced and good draughtsman. Write giving full details and salary required. Box 2464.

ARCHITECTURAL ASSISTANT required by leading firm of Building and Civil Engineering Contractors for their Regional Office in Manchester. Interesting Commercial and Housing work. Please reply, stating salary required, experience and qualifications. Box 2405.

CHIEF ASSISTANT required by private firm of Architects in Westminster. Varied practice. Experience and good references essential. Salary £1,000. Apply Box 2433.

ARCHITECTURAL ASSISTANTS (2) required in City Office with a wide and comprehensive range of commissions. Salary range £559—£832. Seely & Paget. Central 0321.

B. HALLWOOD LINGARD & WILLIAMS, A./A.R.I.B.A., require a young school-trained ASSISTANT for their North West Wales Offices. Rapidly expanding practice with interesting rural contemporary work. Salary up to £750 per annum. Box 2443.

ARCHITECTURAL ASSISTANTS required for commercial practice, West End area; vacancies for two ASSISTANTS of Intermediate Standard; Apply Brian L. Sutcliffe & Partners, 5, Manchester Square, W.1. Telephone Welbeck 9237. 2460

ARCHITECTURAL ASSISTANTS interested in the field of Building for Atomic Energy could be employed by private consultants in London and should apply to Box 235, Glovers Advertising, 351, Oxford Street, London, W.1. 2461

BRISTOL ARCHITECTS require ASSISTANT with at least three years' office experience of Intermediate or near Final Standard. Apply, giving details of experience and salary required, to Box 2416.

ARCHITECTURAL ASSISTANTS required. Intermediate standard. Excellent scope for use of own initiative, and varied experience in practice including hospital, ecclesiastical, industrial, domestic and general work. Good draughtsmanship essential. Apply, giving full details, including salary required, to: H. Anthony Clark, F. C. Roberts & Partners, Chartered Architects, 41, Regent Street, Wrexham. 2415

EDINBURGH Office of David Carr & Stuart Matthew requires SENIOR and JUNIOR ASSISTANTS. Seniors must have considerable experience in running contracts, general design, planning and construction. Juniors should have good practical office experience and/or school qualifications. For interview write, giving brief particulars and salary required, to above firm at 14, Lynedoch Place, Edinburgh. 2396

TWO ASSISTANTS.—A SENIOR with administrative in addition to architectural ability, possessionof a car an advantage; and a JUNIOR with drawing office experience. Salaries in the £1,200—£1,500 and £500—£750 ranges, respectively, according to experience and qualifications. Interesting work, large scale housing, Schools, Hospitals, etc. Five-day week. Write or 'phone William Crabtree, 8, Robert Adam Street, W.1. Welbeck 8918. 2480

ASSISTANT ARCHITECTS are required by Wornum and Playne, 19, Queen Anne's Gate, Westminster, S.W.1, in the salary range of £500 to £1,000 p.a. for work on various projects. Please apply in writing, giving only brief details of experience. 2478

ARCHITECTURAL ASSISTANT required. Intermediate or Final Standard. Varied and interesting work in congenial office. Particulars prior to interview to Naylor, Sale & Widdows, St. Mary's Chambers, St. Mary's Gate, Derby. 2471

ARCHITECTURAL ASSISTANTS required preferably qualified or now preparing for Final R.I.B.A. for interested and varied large scale contracts in the Bristol area. Pension scheme in operation. Full details of age, experience, salary required, and date available to W. H. Watkins, Gray, FF.R.I.B.A. and Partners, Sun Buildings, 1 Clare Street, Bristol, 1. 2374

ADAMS, HOLDEN & PEARSON require ARCHITECTURAL ASSISTANTS immediately. Write giving particulars of experience and salary required to 38, Gordon Square, W.C.1. 2335

ARCHITECT requires CHIEF and SENIOR ASSISTANTS. Interesting work on flats, shops, schools, etc. Apply Roff Marsh, F.R.I.B.A., M.T.P.I., 125, London Road, Chelmsford. 2398

ARCHITECT'S ASSISTANT required for the London office of a firm of Architects with interests throughout the country, must be of Intermediate to Final R.I.B.A. standard. Superannuation scheme. Apply in writing to Messrs. Cotton, Ballard & Blow, 133a, Wembley Park Drive, Wembley, Middlesex. 1763

ARCHITECTURAL ASSISTANTS, urgently required, Intermediate stage or above, with practical experience and needing a minimum of supervision. Commencing salary £600 upwards, according to experience. Apply to W. R. Orme, A.R.I.B.A., Staff Architect, Lane Saville & Co., 10, Carlos Place, Grosvenor Square, London, W.1. 2324

COMPETENT ASSISTANTS, Intermediate to Final standard, required by busy Architects. Salaries on A.P.T. grades basis. Applications, with particulars, to Herbert, Son & Sawday, F. & A./A.R.I.B.A., 18, Friar Lane, Leicester. 2603

ASSISTANTS, desirous of improving their pay and prospects are invited to write, giving full details of experience, stating present salary, to Box 2602.

ARCHITECTURAL ASSISTANT. Partnership prospects, required at once in small Central London office for works of varied character. Practical experience desired; Final standard or near. 'Phone Chancery 5211 or write Box 2594.

JUNIOR ARCHITECTURAL ASSISTANT required (male or female) in Architectural Dept. of old-established firm of Chartered Surveyors. Reply, stating full particulars of experience and salary required, to G. Scott Baird, L.R.I.B.A., 20, Salisbury Street, Blandford Forum. 2596

KEEN and experienced ASSISTANT required for Architect's office, N.W.3 district. Reply, giving full particulars, to Box 2597.

ARCHITECTURAL ASSISTANTS wanted for busy office (10 miles from London) dealing with large School, Hospital and Housing Projects, and with General work. There are vacancies for the following Assistants willing to take responsibility:—

Qualified and with good office experience. £650 to £800 p.a.

Qualified with small experience, or Inter. R.I.B.A. standard, with good office experience. £550 to £650 p.a.

Junior, with good office experience. £450 to £550 p.a.

Five-day week. Superannuation scheme available. Write, giving age and details of training and experience, upon which salary will depend, to Tooley & Foster, Chartered Architects, Midland Bank Chambers, Buckhurst Hill, Essex. 2546

IMPERIAL CHEMICAL INDUSTRIES, LTD., WILTON WORKS.
ASSISTANT TECHNICAL OFFICER.
DRAUGHTSMEN.
CIVIL. STRUCTURAL.
MECHANICAL. ELECTRICAL.
INSTRUMENT.

APPOINTMENTS to PERMANENT STAFF for the design and development of this Modern Factory on a 2,000-acre site.

Applicants should have the appropriate National Certificate and Drawing Office experience.

Wilton is situated in the North Riding of Yorkshire, near the coast, has first-class working conditions, 5-day working week, Pension Fund, Profit Sharing Scheme, and excellent internal recreation facilities.

Out-of-pocket expenses are paid for applicants invited for interview, and after joining the staff married men will receive a refund of removal expenses up to £50, together with rail travel expenses. Schemes for assistance in housing are available, and for house purchase, facilities exist for loans and advances for legal charges.

Write for application form to Staff Manager, Imperial Chemical Industries, Ltd., Wilton Works, Middlesbrough, quoting reference I.C.I./X/250/i. 2525

MESSRS. W. H. SMITH & SON, LTD., require SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS in the Architectural section of their Estate Department, either qualified or Intermediate R.I.B.A. standard. Must be able to prepare working drawings and details for large commercial projects from sketch plans and to work on own initiative, including supervision. Knowledge of shop fitting design an advantage, but not essential. Five-day week. Superannuation Scheme. Staff Canteen facilities. Salary according to age, qualifications and experience. Apply, giving details to the Chief Architect, W. H. Smith & Son, Ltd., Strand House, London, W.C.2. 2527

THE METAL BOX CO., LTD., requires a TECHNICAL ASSISTANT in their Buildings and Services Division, located in London. The applicant must have good building experience, preferably with a knowledge of quantities, and be able to prepare brief specifications for constructional work and to deal with builders' tenders and accounts. Should be familiar with bye-law requirements. Write, stating age and experience, to Staff Division, The Metal Box Co., Ltd., The Langham, Portland Place, London, W.1, quoting reference TA/1. 2539

JENNINGS, HOMER & LYNCH, Chartered Architects and Corporate Surveyors of 3 and 5, Church Street, Brierley Hill, South Staffordshire, have vacancies for ARCHITECTURAL ASSISTANTS, male or female, of all ages. Progressive jobs on interesting and varied work for competent Assistants, with flexibility of ideas and outlook. Apply by letter or telephone Brierley Hill 7545/6. 2544

BANK Architect's Department in City requires JUNIOR ASSISTANT, age about 20-25, having completed or obtained exemption from National Service. Write, stating age, particulars of experience, and salary required. Permanency for suitable applicant subject to probationary period. Box 2538.

BRIAN PEAKE requires ASSISTANT, interested and experienced in the running complete of small contracts. 7, Chesterfield Hill, W.1. GROsvenor 7888. 2542

SIR JOHN BURNET, TAIT & PARTNERS have vacancies for SENIOR and JUNIOR ASSISTANTS. Write, giving particulars, to 10, Bedford Square, W.C.1. 2541

JUNIOR ASSISTANT, competent to make measured surveys and prepare working drawings, required by Wallis & Smith, Chartered Architects, Basingstoke. Apply by letter, stating salary required. 2533

ASSISTANT, with ability and experience, wanted at once. Varied work, schools, housing, etc. Apply, stating age, experience, and salary required, to Quick & Lee, Chartered Architects, 11, Waterloo Place, Leamington Spa, Warwickshire. 2532

GEORGE WIMPEY & CO., LTD.

THE Architects' Department seek ARCHITECTURAL STAFF enthusiastic to apply their knowledge to new construction techniques covering Houses, Multi-Storey Flats, Offices, Schools and Industrial Buildings for contracts in the U.K. and Overseas.

Appointments range from ARCHITECTS to DRAUGHTSMEN, with special interest to those of ability, recognising the value of the designer and technician as an integral part of the production team.

Appointments are on a permanent basis, 5 days a week, at Head Office, Hammersmith.

Salaries will be according to qualifications and experience, and, subject to satisfactory service, there is a Pension Scheme for those wishing to make a career with the firm.

Applicants should write, giving brief particulars, to E. V. Collins, A.R.I.B.A., Chief Architect, George Wimpey & Co., Ltd., 27, Hammersmith Grove, London, W.6. 2531

BENNETT, T. P., & SON, require qualified ARCHITECT, who combines a knowledge of construction with a high standard of draughtsmanship, to co-operate on industrial developments and other building projects. Apply 43, Bloomsbury Square, London, W.C.1. Telephone: HOLborn 9277. 2551

MANCHESTER Firm of Architects require experienced ASSISTANTS; professional qualifications not important. Thorough working knowledge and ability to prepare detail drawings and organise work in progress essential. Write, giving details of experience and salary required. Contributory pension scheme in operation. Plenty of scope for right men. Box 2529.

ASSISTANT required in Architect's Department of large Industrial Company for about two years' work. Sound knowledge of construction; preparation of working drawings and details, particularly of Industrial type buildings. Particulars and salary required to the Resident Architect, Evans Medical Supplies, Ltd., Speke, Liverpool, 19. 2519

ARCHITECTURAL ASSISTANT (Senior or Inter. standard) required by Multiple Company in London. Full experience of surveys, working drawings, detailing and supervision of jobs. 5-day week, canteen facilities. Permanent and pensionable post. Apply in writing, stating age, qualifications, salary required, and experience, to Box 2518.

JUNIOR ARCHITECTURAL ASSISTANT, Intermediate grade, required Bournemouth office. Write, stating experience and salary required. Box 2517.

JUNIOR ASSISTANT required by Industrial Design organisation to work with architect and designers of varied projects. Must be experienced and good draughtsman. Write, giving full details and salary required. Box 2464.

ARCHITECTURAL ASSISTANTS, Senior and Junior required, preferably with London practice experience, office and factory buildings. Write, giving particulars of experience, etc., to Messrs. Bates & Sinning, 89, Chancery Lane, W.C.2. 2508

SOUTH BANK DEVELOPMENT: UPSTREAM AND DOWNSTREAM OFFICES.—Messrs. Easton & Robertson require ARCHITECTURAL ASSISTANTS. Apply in writing, 53, Bedford Square, W.C.1. 2514

ARCHITECTURAL DRAUGHTSMEN.

A LARGE national firm of Contractors, engaged upon the development of housing estates throughout the country, require the services of Two ARCHITECTURAL DRAUGHTSMEN in their London office. Duties will include the preparation, under supervision, of house designs, including detailed drawings and the layout of estates.

The positions offered carry a wide variety of interest and offer the chance of promotion to more senior posts. The salary offered is between £550 and £650, according to experience. Bonus and pension schemes in operation.

Write in confidence, giving full particulars of previous experience, to Box No. 1485, c/o Whites, Ltd., 72/78, Fleet Street, London, E.C.4. 2513

CHIEF ASSISTANT required by well-established West End architects. Pension scheme. No Saturdays. Full details and salary required to Box 2592.

LAGOS EXECUTIVE DEVELOPMENT BOARD—NIGERIA.

ASSISTANT ARCHITECT. £1,500 per annum.

(1) Applications are invited for the above appointment.

(2) The Board is responsible for large-scale planning control, outline and detail planning and construction for both new development and redevelopment for industrial, residential and commercial purposes in Lagos. These responsibilities follow very similar lines to those of a Development Corporation operating under the New Towns Act, 1946.

(3) Candidates must preferably have experience in large-scale housing development and be Associate Members of the Royal Institute of British Architects.

(4) Conditions of appointment are as follows: Appointment is for one tour of 18 to 24 months in the first instance, renewable by mutual agreement. The Board operates a Provident Fund, to which the officer contributes 10 per cent. of his salary. Leave is granted at the rate of seven days on full pay for each month resident in Lagos. Free first-class air passages are provided for the officer and his wife, and assisted passages (maximum £75 per child) for up to two children, or separation allowance of £75 per annum per child in lieu thereof. Partly furnished quarters are provided, for which a rent of 10 per cent. (maximum £150 per annum) of the officer's basic salary is charged.

(5) Application forms obtainable from and returnable in duplicate to the Commissioner for Nigeria in the United Kingdom, 41, Buckingham Palace Road, London, S.W.1, not later than 17th September,. Mark correspondence L.E.D.B. 2555

APPLICATIONS are invited from suitably qualified and experienced persons for the posts of SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS in the London office of this Organisation. Applicants must be first-class draughtsmen, possessing a sound knowledge of construction, materials, and contemporary design. Duties will be concerned with large scale housing and multi-storey flat design and layout, industrial educational and civic buildings. Salary in accordance with experience and ability. Requests for form of application to Kendrick Findlay & Partners, Chartered Architects, 35, Tavistock Square, W.C.1. 2556

REQUIRED, at Company's Head Office, Guildford, ARCHITECTURAL ASSISTANT, A.R.I.B.A. Varied work, mainly factory. Five-day week. Salary by arrangement. Box 2558.

ARCHITECTS required for progressive Birmingham practice. Those who apply should be experienced and enthusiastic. Vacancies also exist for JUNIORS. Box 2590.

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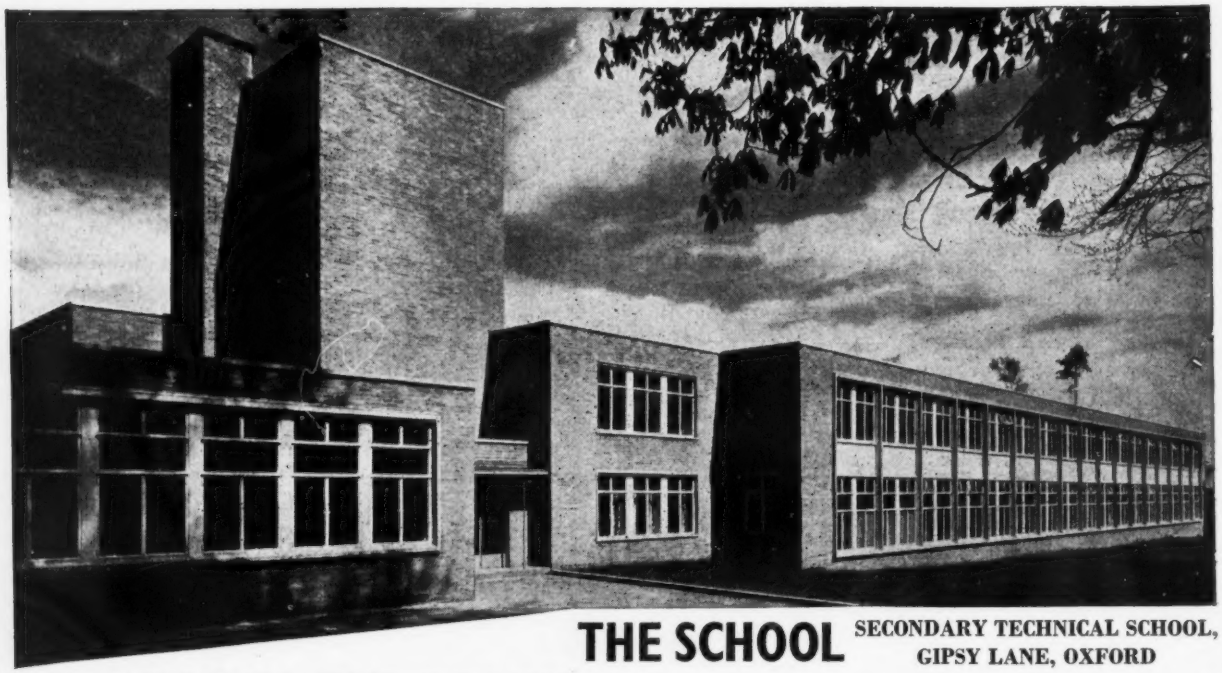
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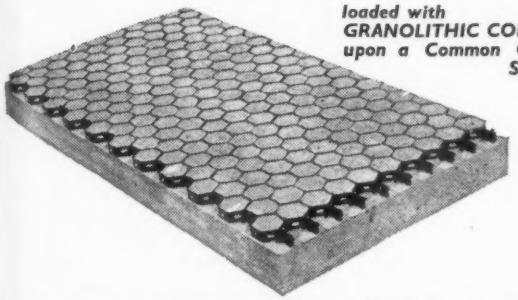
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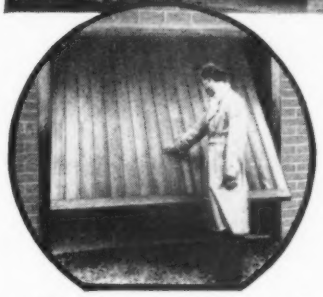
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Printed in Great Britain for the Proprietors of "THE ARCHITECTS' JOURNAL" (The Architectural Press Ltd.), 9, 11 and 13, Queen Anne's Gate Westminster, S.W.1, by HARRISON & SONS LTD., by Appointment to Her Majesty The Queen, Printers, London, Hayes (Middx.), and High Wycombe.
Editorial illustrations engraved by THE ENGRAVERS' GUILD LTD., Windsor House, 23/26, Cursitor Street, London, E.C.4.

